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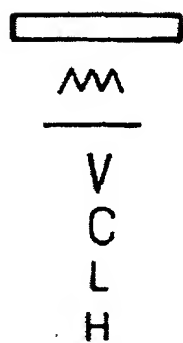
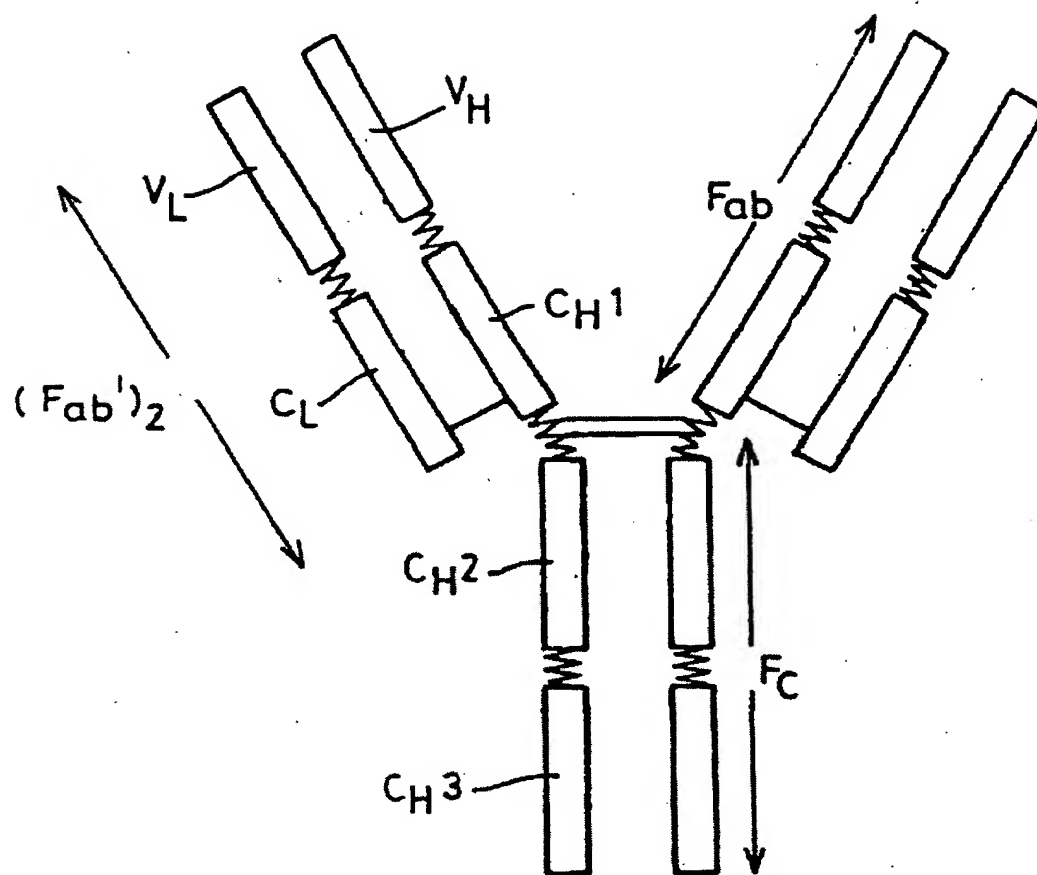


FIG. 1

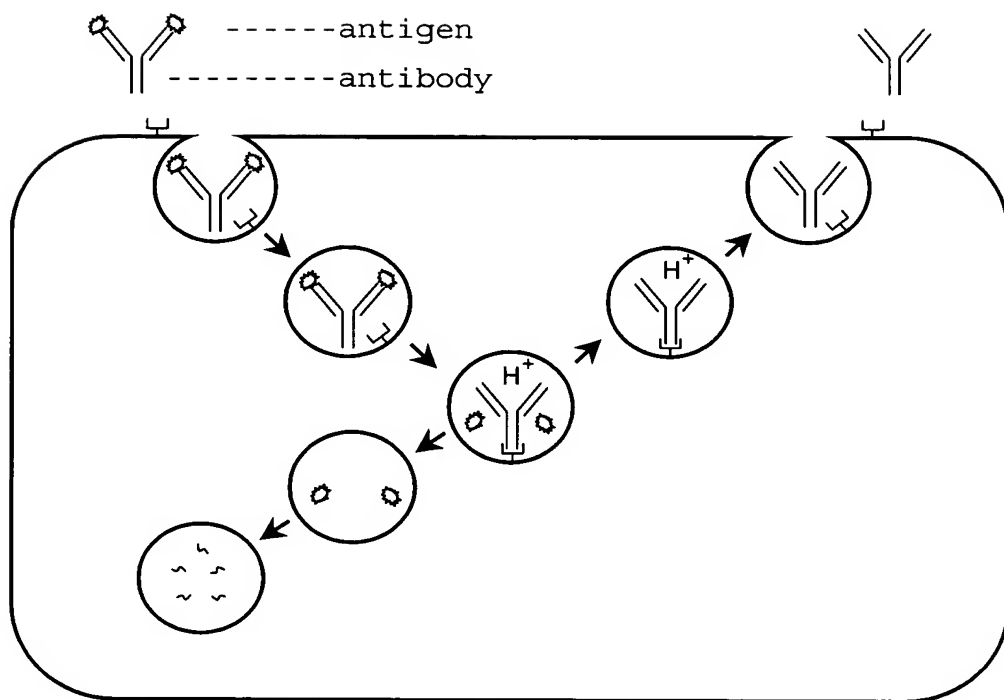


FIG. 2

FIG. 3A Amino Acid Sequences of OST577-IgG2M3 and OST577-IgG1

OST577 - VH	QVQLVESGGGVVQPGRSLRLSCAASGFTFSRYGMHWVRQAPGKGLEWVAVISYDGSNKKYADSVKGRFTISRDNISKNTLFLQMHSLSRAADTGVIYFCAKDQLYFGSQSPGHYMGQGTLTVTSS
IgG2M3 - CH	ASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSVSVTVVPSNFGTQTTCNVDPKPSNTKVDKVERKCCVECPPCP APPAAPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNKTKPREEQFNSTFRVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTK GQPREPQVYTLPPSRREMTKNQVSLTCLVKGFPYSDIAVEWESNGQPENNYKTTTPMLDSGGSFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNNHYTQKSLSLSPSK
IgG1 - CH	ASTKGPSVFPLAPSSKSTSGGTAAAGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSVSVTVVPSNFGTQTTCNVDPKPSNTKVDKVERKCCVECPPCP APPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNKTKPREEQFNSTFRVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKAK GQPREPQVYTLPPSRDELTKNQVSLTCLVKGFPYSDIAVEWESNGQPENNYKTTTPVLDSDGGSFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNNHYTQKSLSLSPGK
OST577 - VL	SYVLTQPPSVSVAPQQTARIITCGGDNIGSKSVNWFQKPKQAPVLVYDDNERPSGISERFSGNSGNTATLTISRVEAGDEADYYCQVWDSSSDHWVFGGTKLTVLG
LAMBDA2 - CL	QPKAAPSVTLFPPSSEELQANKATLVCLISDFYPGAVTVAMKADSSPVKAGVETITTPSKQSNKKYAASVLSLTPEQWKSRSYSCQVTHEGSTVEKTVAPTECS

FIG. 3B Amino Acid Sequences of OST577-IgG2M3 and Its Mutants

IgG2M3	ASTKGPSVFP
T250A	APCSRSTSE
T250C	TAAAGCLVK
T250D	DYFPEPVT
T250E	SVSN
T250F	SGAL
T250G	TSGVHT
T250H	FP
T250I	PAVLQSSGL
T250K	YLSLSV
T250L	VTVPSS
T250M	NFGTQ
T250N	YTCNV
T250P	DH
T250Q	KPSNT
T250R	KVDKTV
T250S	-----
T250V	-----
T250W	-----
T250Y	-----
L314A	-----
L314C	-----
L314D	-----
L314E	-----
L314F	-----
L314G	-----
L314H	-----
L314I	-----
L314K	-----
L314M	-----
L314N	-----
L314P	-----
L314Q	-----
L314R	-----
L314S	-----
L314T	-----
L314V	-----
L314W	-----
L314Y	-----
M428A	-----
M428C	-----
M428D	-----
M428E	-----
M428F	-----
M428G	-----

FIG. 3B Amino Acid Sequences of OST577-IgG2M3 and Its Mutants

M428H	-----
M428I	-----
M428K	-----
M428L	-----
M428N	-----
M428P	-----
M428Q	-----
M428R	-----
M428S	-----
M428T	-----
M428V	-----
M428W	-----
M428Y	-----
T250E/M428F	-----
T250Q/M428F	-----
T250Q/M428L	-----
IG2M3	ERKCCVECPCP
T250A	-----
T250C	-----
T250D	-----
T250E	-----
T250F	-----
T250G	-----
T250H	-----
T250I	-----
T250K	-----
T250L	-----
T250M	-----
T250N	-----
T250P	-----
T250Q	-----
T250R	-----
T250S	-----
T250V	-----
T250W	-----
T250Y	-----
L314A	-----
L314C	-----
L314D	-----
L314E	-----
L314F	-----
L314G	-----
L314H	-----
L314I	-----
L314K	-----

FIG. 3B Amino Acid Sequences of OST577-IgG2M3 and Its Mutants

L314M	-----	
L314N	-----	
L314P	-----	
L314Q	-----	
L314R	-----	
L314S	-----	
L314T	-----	
L314V	-----	
L314W	-----	
L314Y	-----	
M428A	-----	
M428C	-----	
M428D	-----	
M428E	-----	
M428F	-----	
M428G	-----	
M428H	-----	
M428I	-----	
M428K	-----	
M428L	-----	
M428N	-----	
M428P	-----	
M428Q	-----	
M428R	-----	
M428S	-----	
M428T	-----	
M428V	-----	
M428W	-----	
M428Y	-----	
T250E/M428F	-----	
T250Q/M428F	-----	
T250Q/M428L	-----	
IgG2M3	APPAAAPSVFLFPPPKDGLMI	SRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVWSVLTVVHQDMLNGKEYCKVSNKGLPAPIEKTISKTK
T250A	-----	A-----
T250C	-----	C-----
T250D	-----	D-----
T250E	-----	E-----
T250F	-----	F-----
T250G	-----	G-----
T250H	-----	H-----
T250I	-----	I-----
T250K	-----	K-----
T250L	-----	L-----
T250M	-----	M-----
T250N	-----	N-----

FIG. 3B Amino Acid Sequences of OST577-IgG2M3 and Its Mutants

T250P	P
T250Q	Q
T250R	R
T250S	S
T250V	V
T250W	W
T250Y	Y
L314A	A
L314C	C
L314D	D
L314E	E
L314F	F
L314G	G
L314H	H
L314I	I
L314K	K
L314M	M
L314N	N
L314P	P
L314Q	Q
L314R	R
L314S	S
L314T	T
L314V	V
L314W	W
L314Y	Y
M428A	
M428C	
M428D	
M428E	
M428F	
M428G	
M428H	
M428I	
M428K	
M428L	
M428N	
M428P	
M428Q	
M428R	
M428S	
M428T	
M428V	
M428W	
M428Y	

FIG. 3B Amino Acid Sequences of OST577-IgG2M3 and Its Mutants

T250E/M428F	-----E-----
T250Q/M428F	-----Q-----
T250Q/M428L	-----Q-----
IQC2M3	GQPREPOVYTLPPSREEMTKQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPMLDSDGSFFLYSKLTVDKSRWQQGNVSCSVMHEALHNHYTQKSLSLSPSK
T250A	-----
T250C	-----
T250D	-----
T250E	-----
T250F	-----
T250G	-----
T250H	-----
T250I	-----
T250K	-----
T250L	-----
T250M	-----
T250N	-----
T250P	-----
T250Q	-----
T250R	-----
T250S	-----
T250V	-----
T250W	-----
T250Y	-----
L314A	-----
L314C	-----
L314D	-----
L314E	-----
L314F	-----
L314G	-----
L314H	-----
L314I	-----
L314K	-----
L314M	-----
L314N	-----
L314P	-----
L314Q	-----
L314R	-----
L314S	-----
L314T	-----
L314V	-----
L314W	-----
L314Y	-----
M428A	-----A-----
M428C	-----C-----
M428D	-----D-----

FIG. 3B Amino Acid Sequences of OST577-IgG2M3 and Its Mutants

M428E	E
M428F	F
M428G	G
M428H	H
M428I	I
M428K	K
M428L	L
M428N	N
M428P	P
M428Q	Q
M428R	R
M428S	S
M428T	T
M428V	V
M428W	W
M428Y	Y
T250E/M428F	F
T250Q/M428F	F
T250Q/M428L	L

FIG. 3C Amino Acid Sequences of OST577-IgG1 and Its Mutants

IgG1	ASTKGPVFPFLAPSSKSTSGTAALGCLVKDYFPEPTVSWNSGALTSGVHTFPAVLQSSGLYSLSVVTPSSSLGTQTYICNVNHRPSNTKVDKKV
T250D	-----
T250E	-----
T250Q	-----
M428F	-----
M428L	-----
T250E/M428F	-----
T250Q/M428L	-----
IgG1	EPKSCDKHTCPPCP
T250D	-----
T250E	-----
T250Q	-----
M428F	-----
M428L	-----
T250E/M428F	-----
T250Q/M428L	-----
IgG1	APELLGGPSVFLFPPPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVHLQDWLNGKEYKCKVSNKALPAPIEKTISKAK
T250D	-----D-----
T250E	-----E-----
T250Q	-----Q-----
M428F	-----
M428L	-----
T250E/M428F	-----E-----
T250Q/M428L	-----Q-----
IgG1	GQPREPOVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFCSCVMEALHNHYTQKSLSLSPGK
T250D	-----
T250E	-----
T250Q	-----
M428F	-----F-----
M428L	-----L-----
T250E/M428F	-----F-----
T250Q/M428L	-----L-----

FIG. 3D Amino Acid Sequences of Hu1D10-IgG2M3 and Hu1D10-IgG1

Hu1D10 - VH	QVQLQESGPGLVKPSETLSLTCTVSGFSLTNYGVHVRQSPGKGLEWIGVKWGGSTENAAFI SRLTISKDTSKQVSLKLSLTAADTAVTYCARNDRYAMDYWGQGLVTYVSS
IgG2M3 - CH	ASTKGPVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVTPSSNFGTQTYTCNVDRHKPSNTKVDKTVRKCCVCEPPCP APPAAPSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWLNGKEYCKCKVSNKGLPAPIEKTIISKTK GQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPPMLDSDGSFFLYSKLTVDKSRHQQGNVFPSCSVMEALHNHYTQKSLSLSPSK
IgG1 - CH	ASTKGPVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVTPSSSLGTQTYICNVNHRKPSNTKVDKKEVPKSCDKTHTCPPCP APELLGGPSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTIISKAK GQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRHQQGNVFPSCSVMEALHNHYTQKSLSLSPGK
Hu1D10 - VL	DIQMTQSPSSLSASVGDRVTITCRASENIYSYLAWYQQKPKAPKLLVSNAKTLAEGVPSRFSGSGSKGQFTLTITSSLPQEDFATYYCQHHYGNISYPFGGGTKLEIK
KAPPA - CL	RTVAAPSVFIFPPSDEQLKSGTASVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

FIG. 3E Amino Acid Sequences of Hu1D10-IgG2M3 and Its Mutants

IgG2M3	ASTKGPSVFPFLAPCSRSTSESTAALGCLVKDYFPEPTVSVNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSNFGTQTYYTTCNVDHKPSNTIKVDKIV
M428L	-----
T250Q/M428L	-----
IgG2M3	ERKCCVECP
M428L	-----
T250Q/M428L	-----
IgG2M3	APPAAAPSVTLFPPKPDTLMI SRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVVSVLTWVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTK
M428L	-----
T250Q/M428L	-----Q-----
IgG2M3	GQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPMLDSDGSFFLYSKLTVDKSRHQQGNVFSCSVMHEALHNHYTQKSLSLSPSK
M428L	-----
T250Q/M428L	-----L-----L-----

FIG. 3F Amino Acid Sequences of Hu1D10-IgG1 and Its Mutants

IgG1	ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVFESSSLGTQTYICNVNHKPSNTKVDKKV	
M428L	-----	
T250Q/M428L	-----	
IgG1	EPKSCDKTHTCPPCP	
M428L	-----	
T250Q/M428L	-----	
IgG1	APELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEFHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAK	
M428L	-----	T250Q/M428L
	-----Q-----	
IgG1	GQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFTSCSVMEALHNHYTQKSLSLSPGK	
M428L	-----	
T250Q/M428L	-----L-----	

FIG. 3G Amino Acid Sequences of Hu1D10-IgG3 and Hu1D10-IgG4

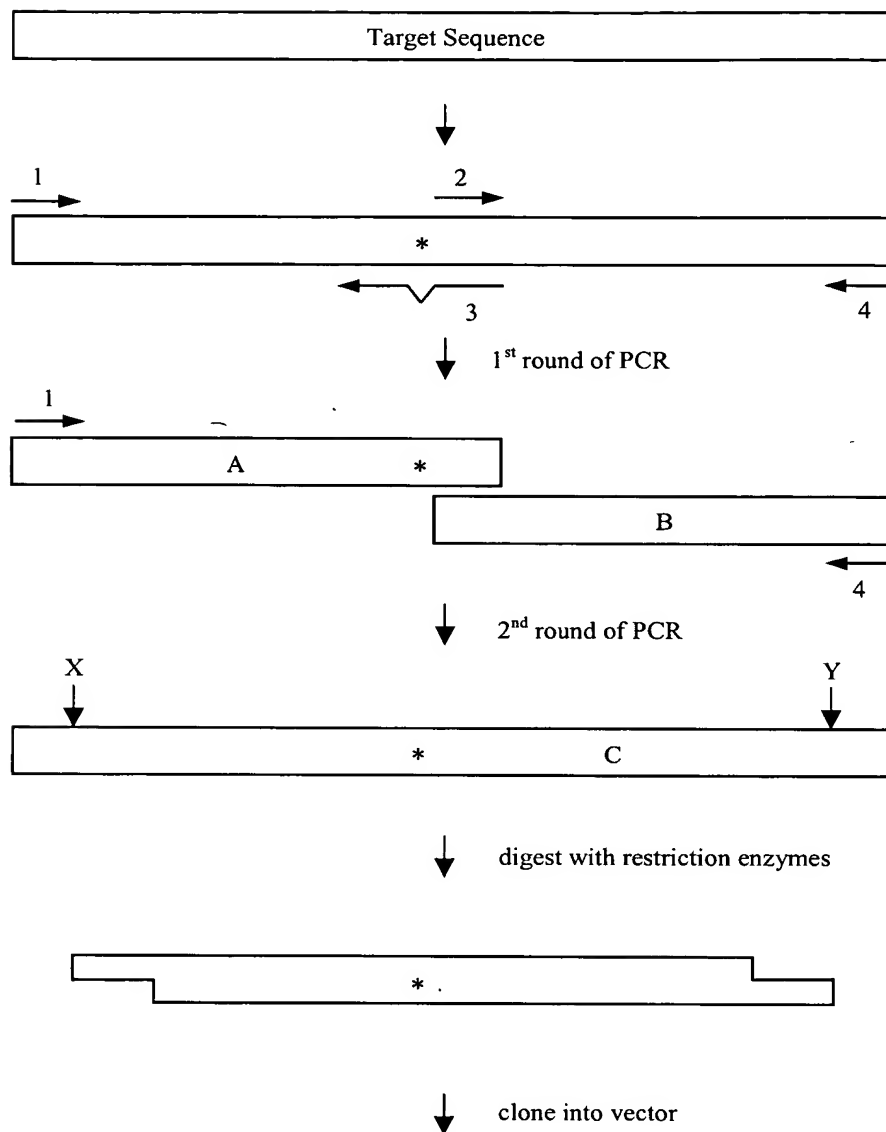
Hu1D10-VH	QVQLQESGPGLVKPSSETLSLTCTVSGFSLTNYGVHWVRQSPGKLEWIGVKWSSGSTEYNAAFISRLTISKDTSKNQVSLKLNLSLTAADTAVYYCARNDRYAMDYWGQGTILVTVSS
IgG3-CH	ASTKGPSVFPLAPCSRSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVTPSSSLGTQTYTCNVNHKPSNTKVKDKRV ELKTPLEGDTHTCPRCPEPKSCDTPPPCPRCPEPKSCDTPPPCPRCPEPKSCDTPPPCPRCP APELLGGPSVFLFPPPKDILMISRTPEVTCVVVDVSHEDPEVQPKWYVDGVEVHNAKTKLREEQYNSTFRVVSVLTVLHQDMLNGKEYKCKVSNKALPAPIEKTISKAK GQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYNTPPMLDSGSPFLYSKLTVDKSRWQOGNIIFSCSVMEALHNHYTQKSLSLSPGK
IgG4-CH	ASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVTPSSSLGTQTYTCNVDHKPSNTKVDKRVESKYGPPCPSCP APEFLGGPSVFLFPPPKDITLMISRTPEVTCVVVDVSOEDPEVQFNWYVDGVEVHNAKTKPREQFNSTYRVVSVLTVLHQDMLNGKEYKCKVSNKGLPSSIEKTISKAK GQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFPLYSRLLTVDKSRWQEGNVFSCSVMEALHNHYTQKSLSLGLK
Hu1D10-VL	DIQMTQSPSSLSASVGDRVTITCRASENIYSYLAWYQQKPKAPKLLVSNAKTLAEGVPSRPSGSGSGKQFTLTISSLQPEDFATYYCQHHYGNISYPFGQGTGLEIK
KAPPA-CL	RTVAAPSVFIFPPSDDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSITYLSLSLTILTSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

FIG. 3H Amino Acid Sequences of Hu1D10-IgG3 and Its Mutant

IgG3 M428L	ASTKPSVFPLAPCSRSTSGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSVVTVTPSSSLGTQTYTCNVNHHKPSNTKVDKRV -----
IgG3 M428L	ELKTPGLGDTHTTCPRCP -----
IgG3 M428L	EPKSCDTPPPCPRCP -----
IgG3 M428L	EPKSCDTPPPCPRCP -----
IgG3 M428L	EPKSCDTPPPCPRCP -----
IgG3 M428L	APELLGGPSVFLPPPKPKDTLMISRTPEVTCVVVDVSHEDPEVQFKWYVDGVEVHNAKTKLREEQYNSTFRRVSVLTVLHQDMLNGKEYCKVSNKALPAPIEKTISKAK -----
IgG3 M428L	GQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYNTTPPMLDSGSGFFLYSKLTVDKSRWQOGNI FSCSVNHEALHNRYTQKSLSPGK -----L-----

FIG. 3I Amino Acid Sequences of Hu1D10-IgG4 and Its Mutants

IgG4	ASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYTCNVDPKPSNTKVDKRV
M428L	-----
T250Q/M428L	-----
IgG4	ESKYGPPCPSCP
M428L	-----
T250Q/M428L	-----
IgG4	APEFLGGPSVFLFPPPKPKDTLMISRTPEVTCVVVDVSDPDPEVFQFNWYVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTIISKAK
M428L	-----
T250Q/M428L	-----Q-----
IgG4	GPQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFPLYSLRTVDKSRMQEGNVFSCSVMHNAHNNHYTQKSLSLSLGK
M428L	-----L-----
T250Q/M428L	-----L-----



* = primer mismatches

FIG. 4

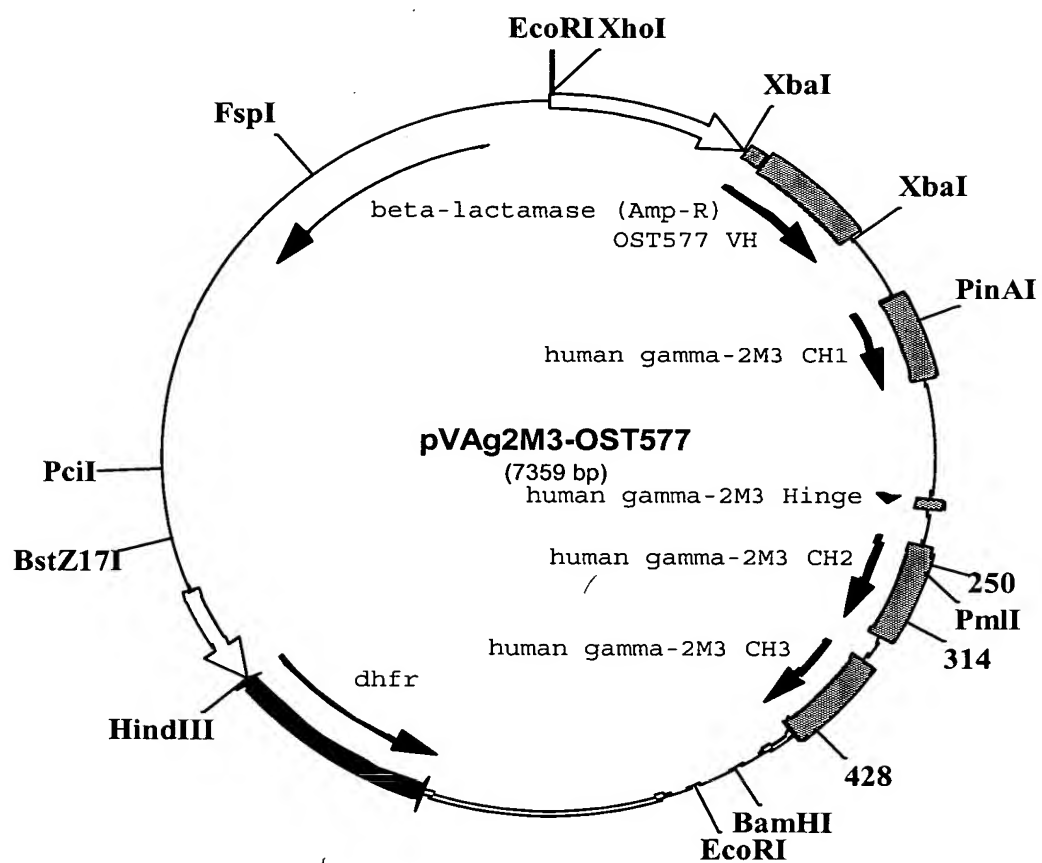


FIG. 5A

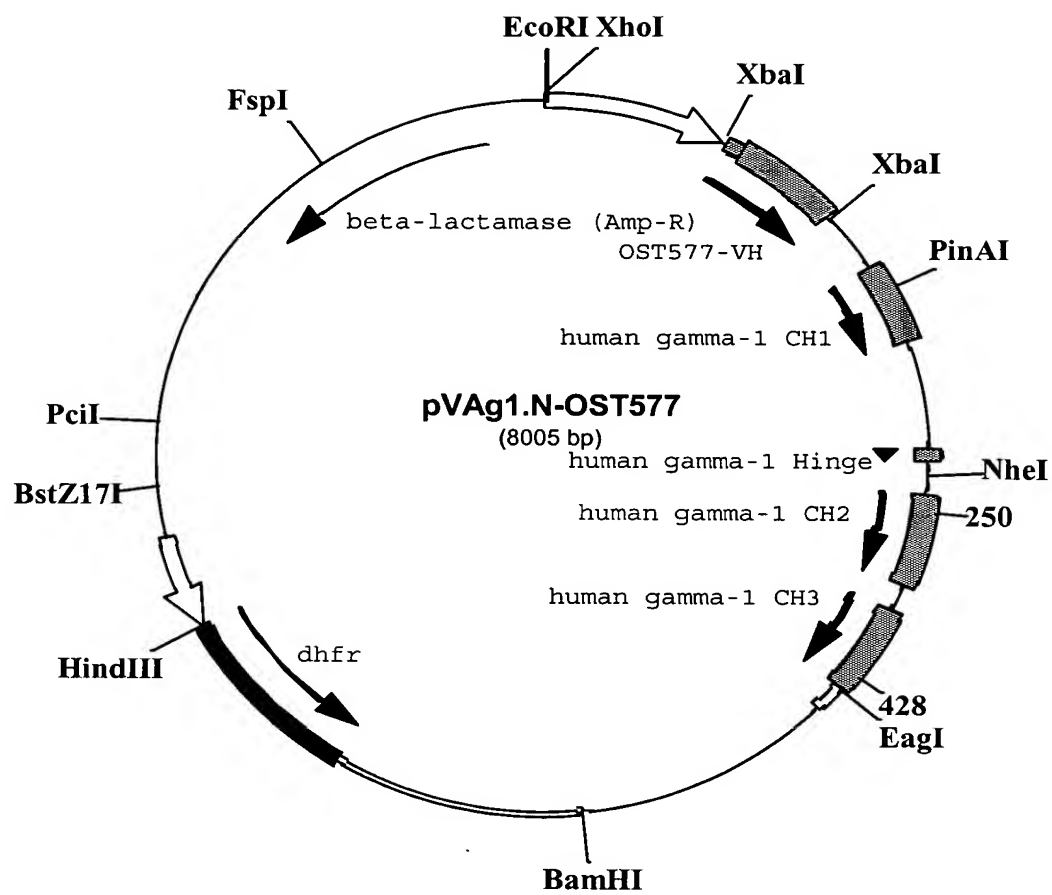


FIG. 5B

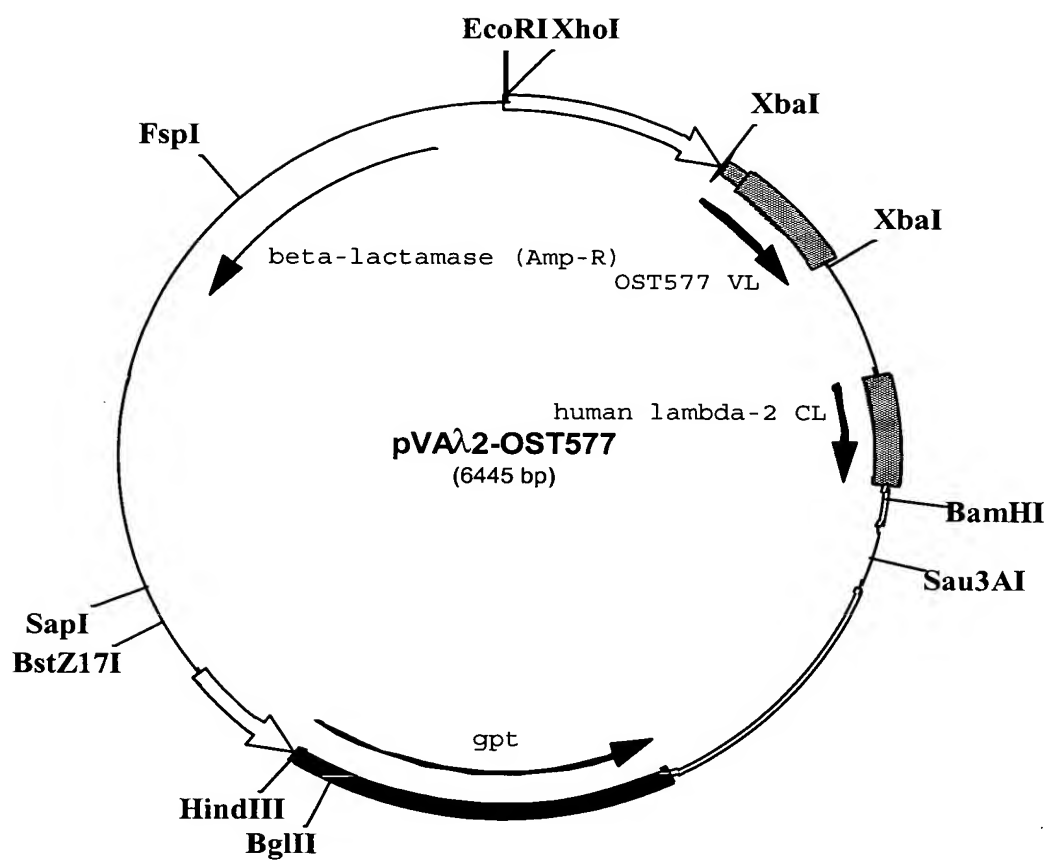


FIG. 6

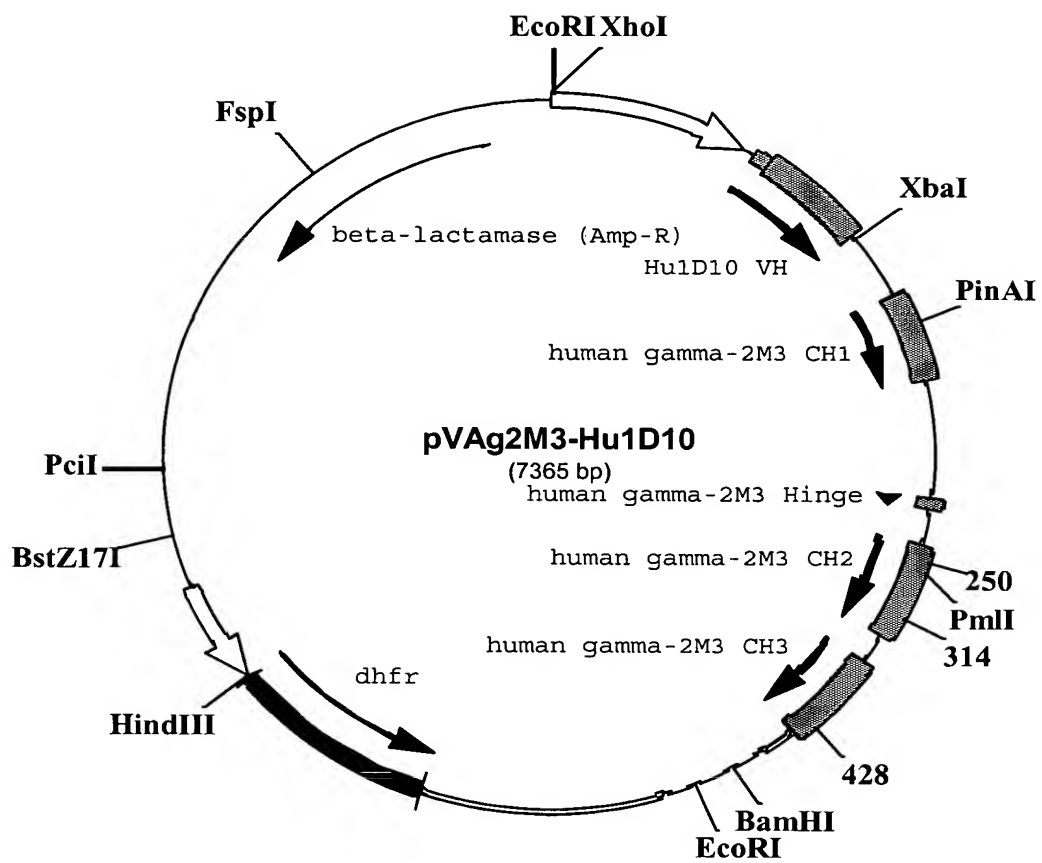


FIG. 7A

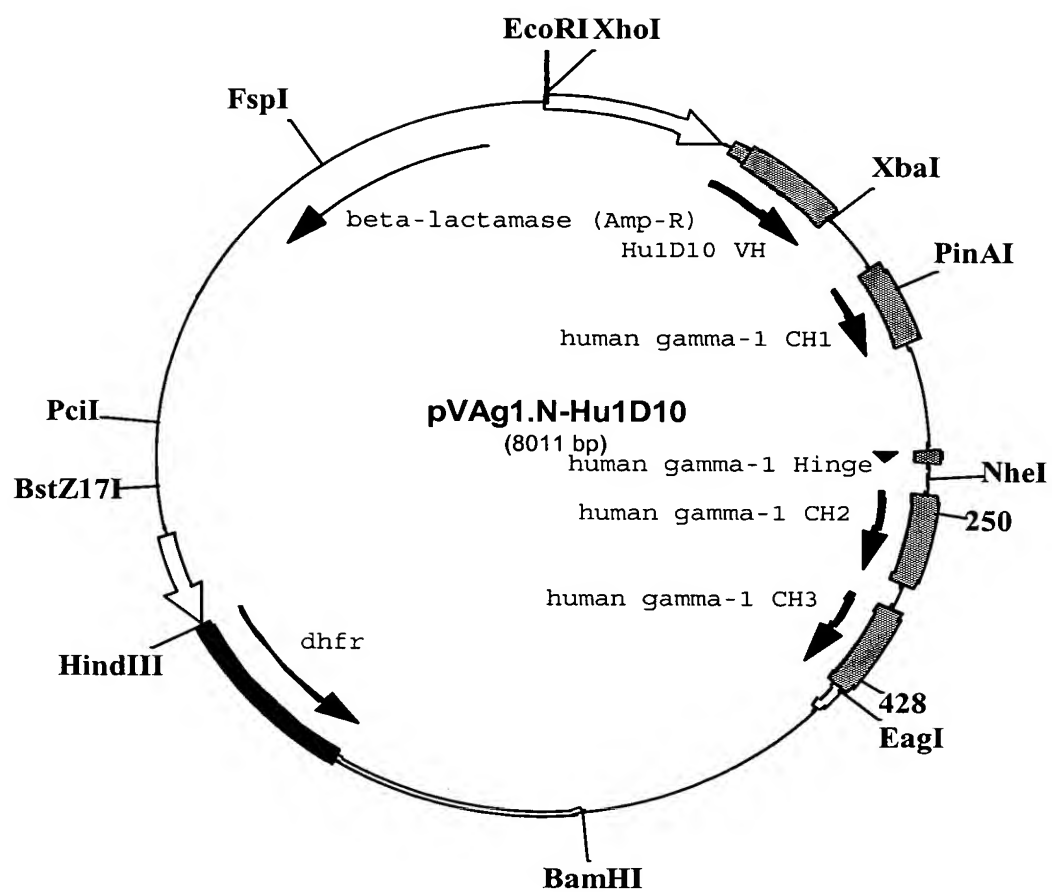


FIG. 7B

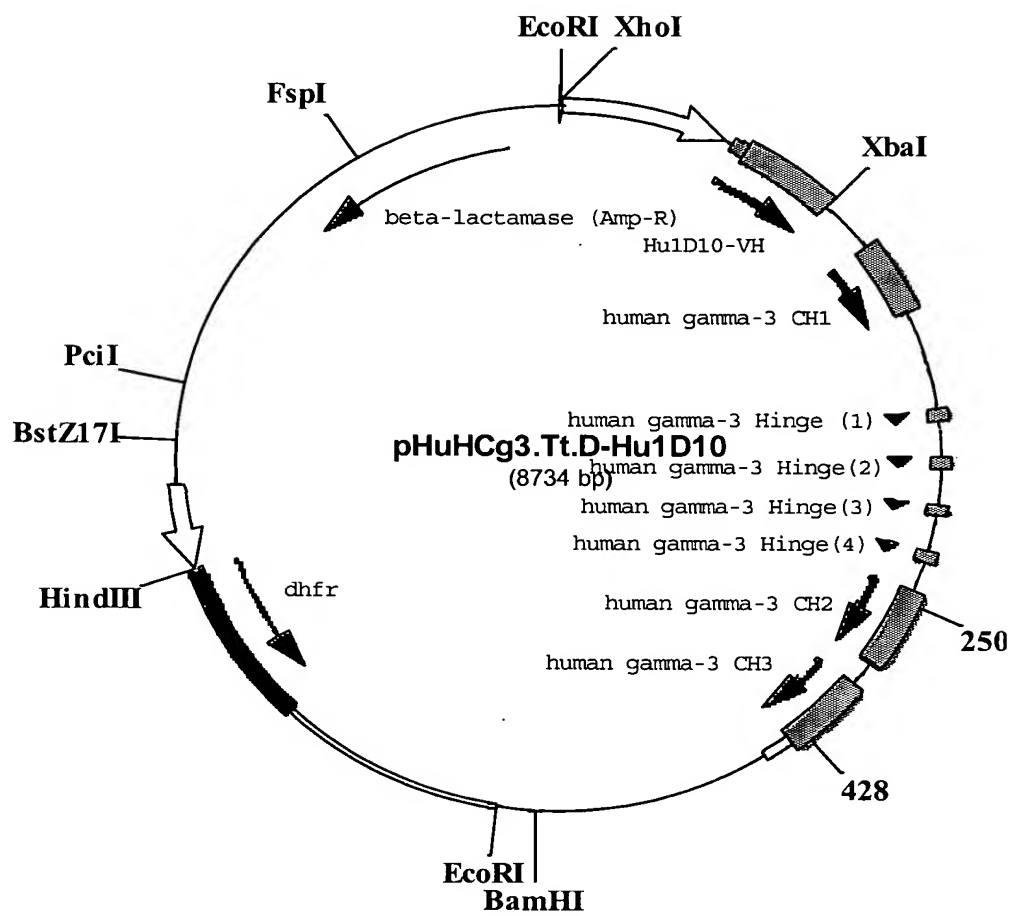


FIG. 7C

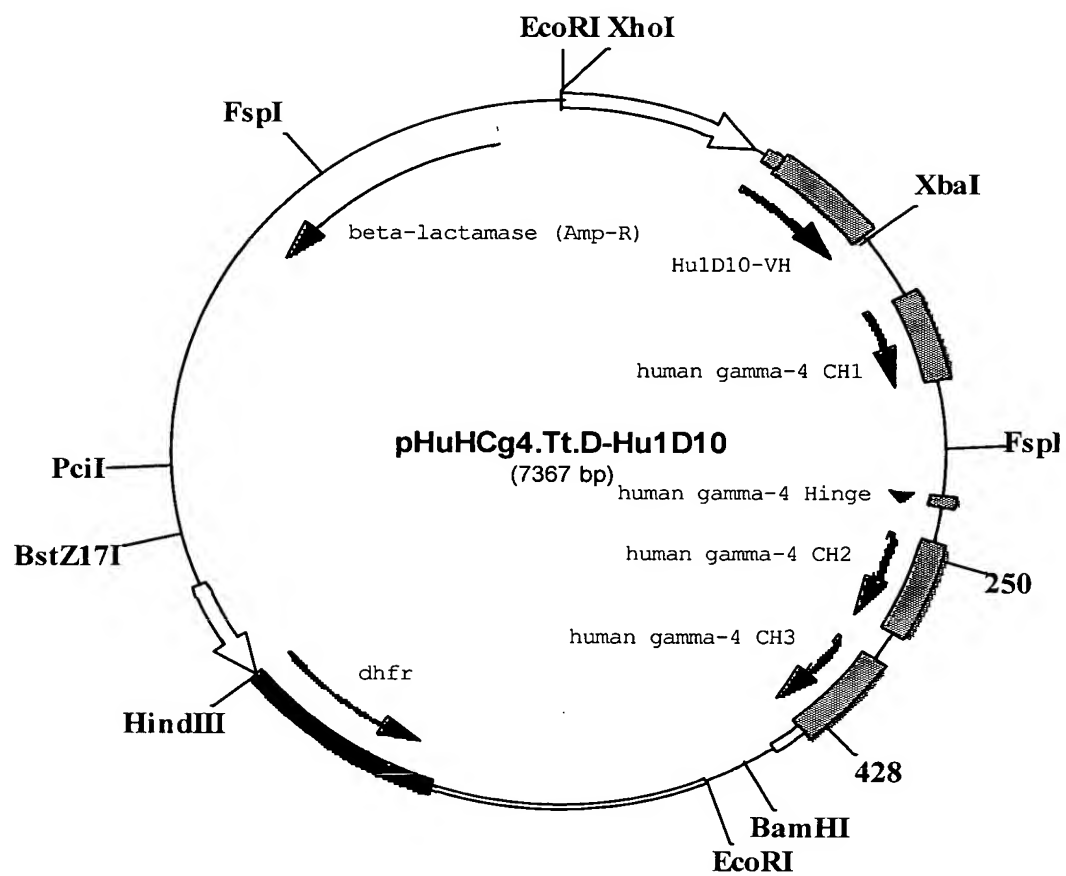


FIG. 7D

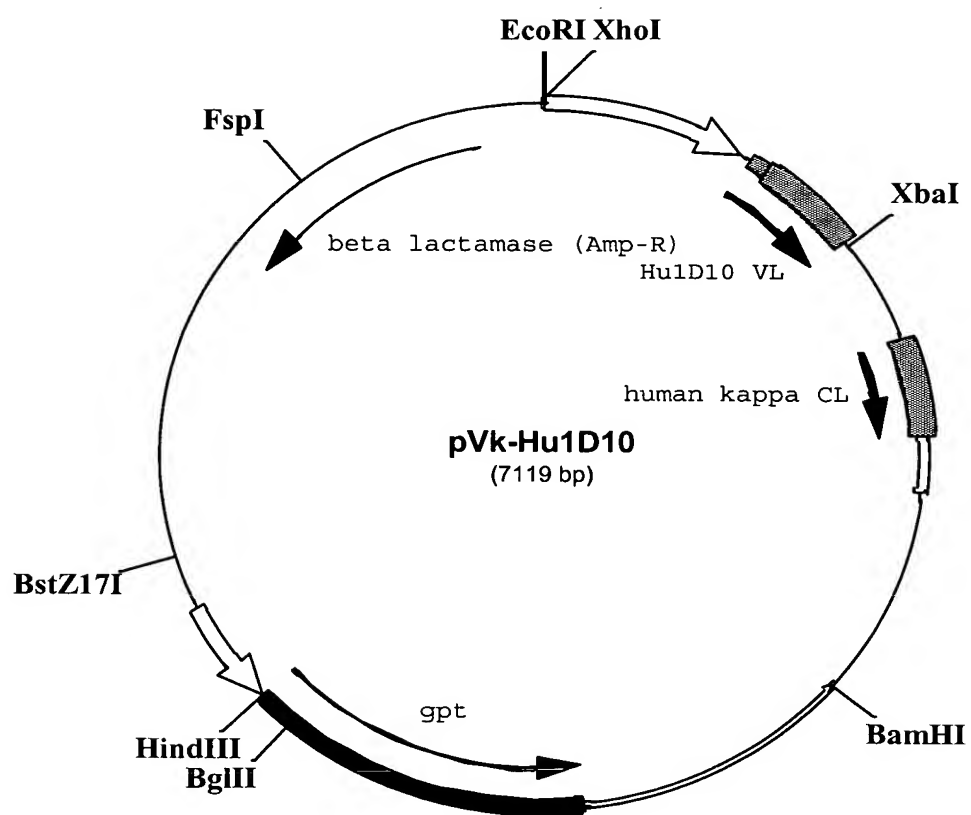


FIG. 8

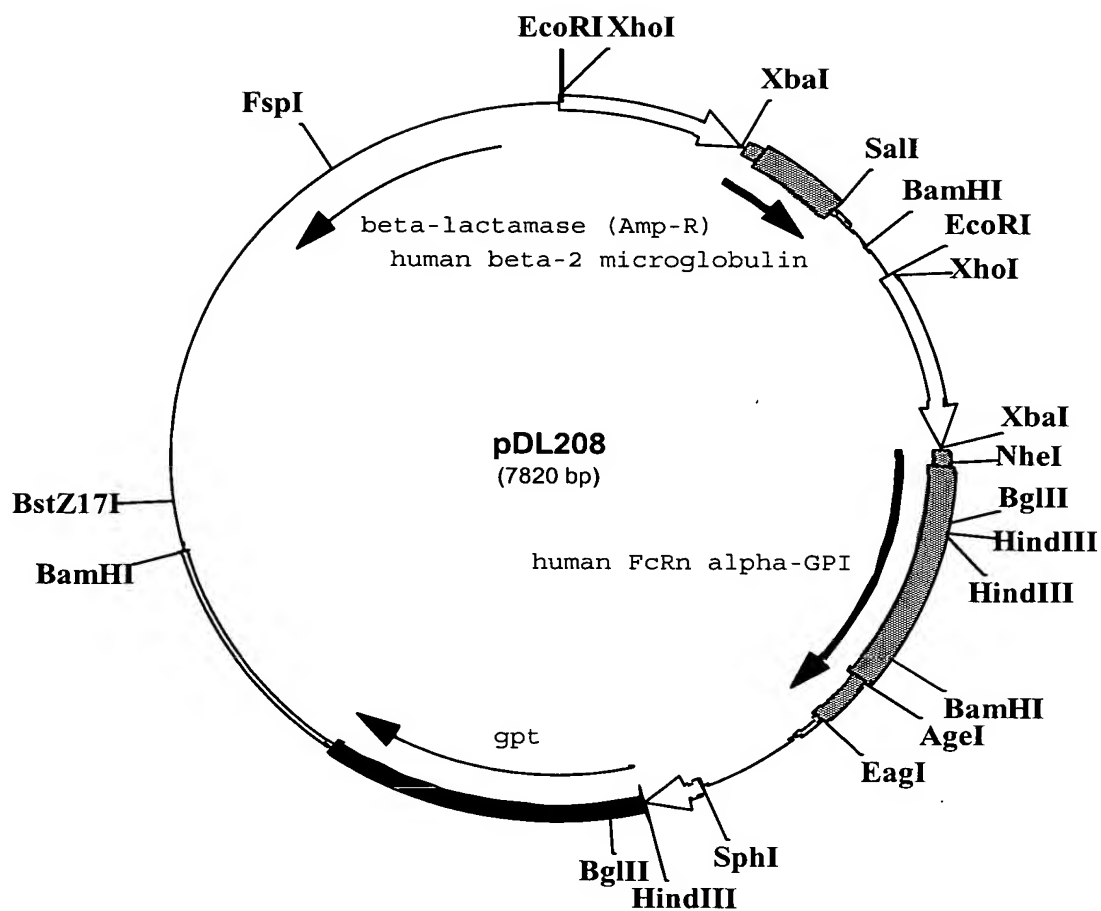


FIG. 9A

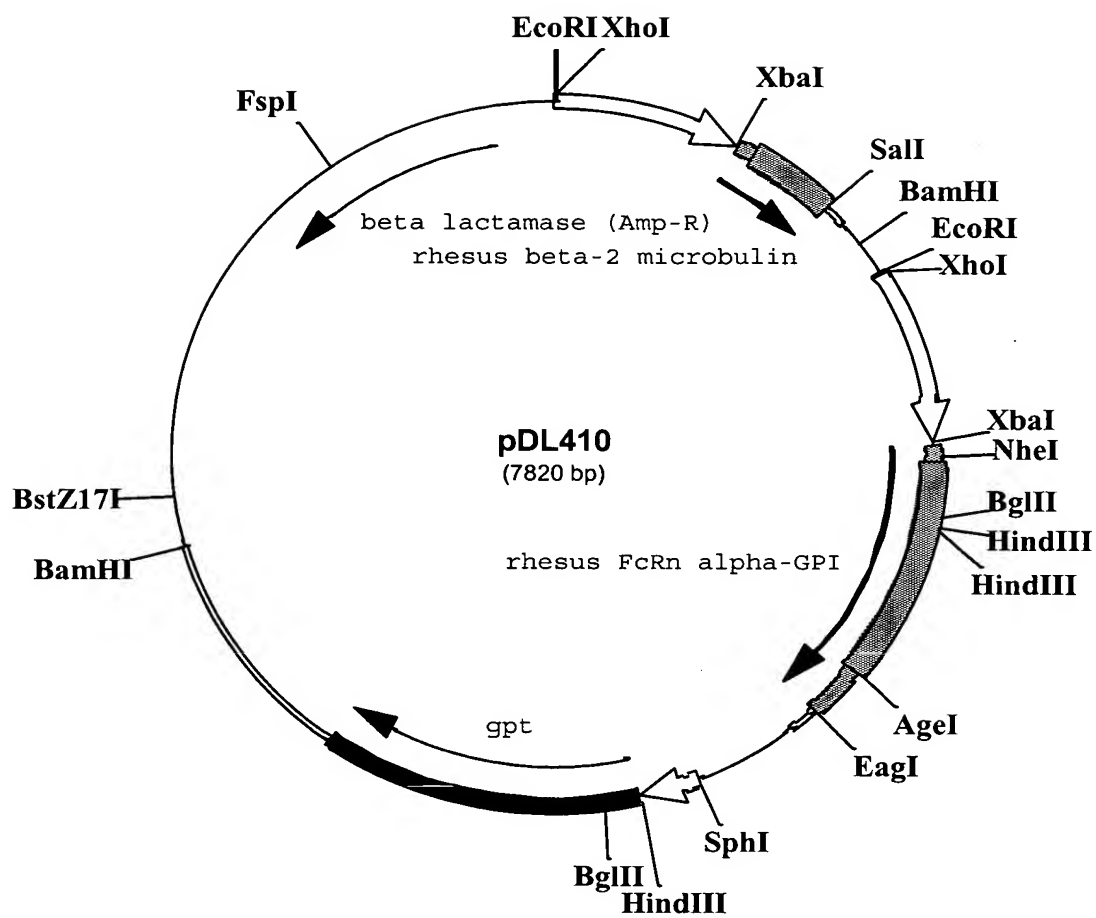


FIG. 9B

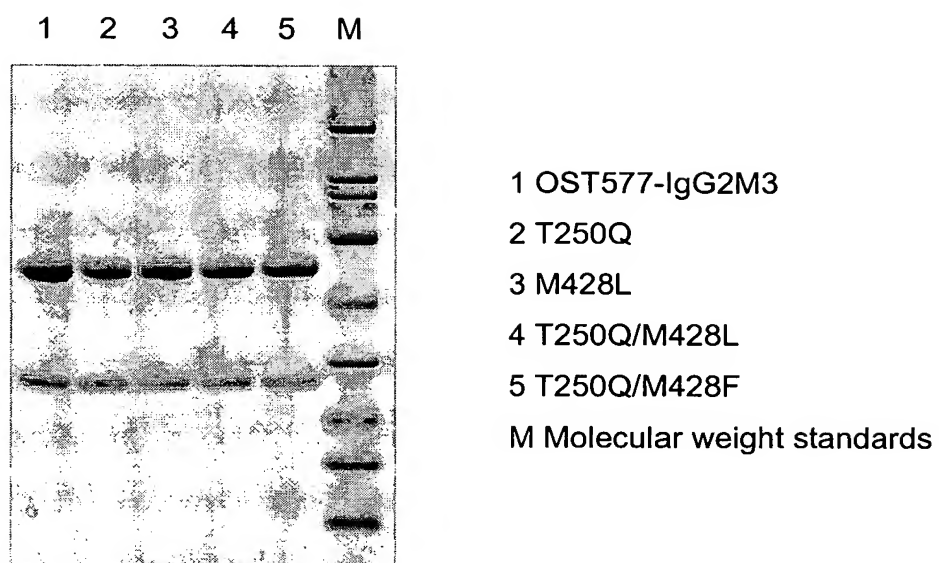
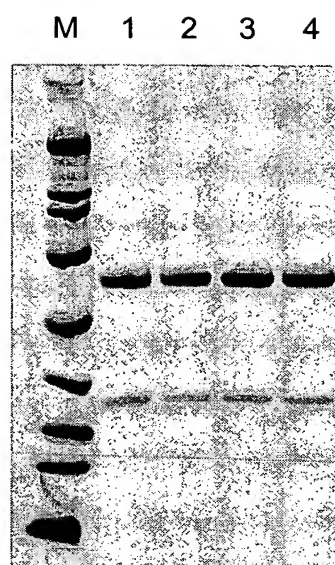


FIG. 10A



M Molecular weight standards

1 OST577-IgG1

2 T250E

3 M428F

4 T250E/M428F

FIG. 10B

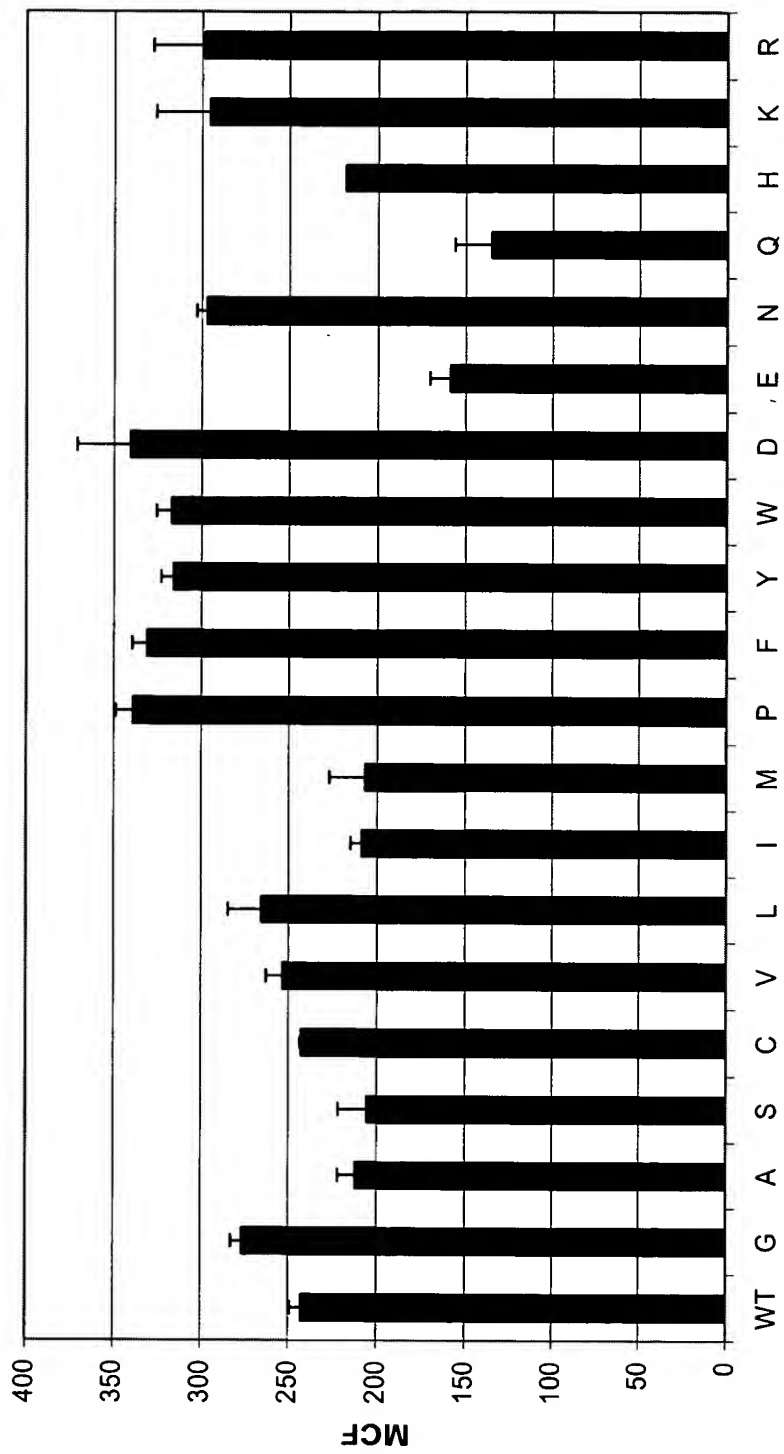


FIG. 11A

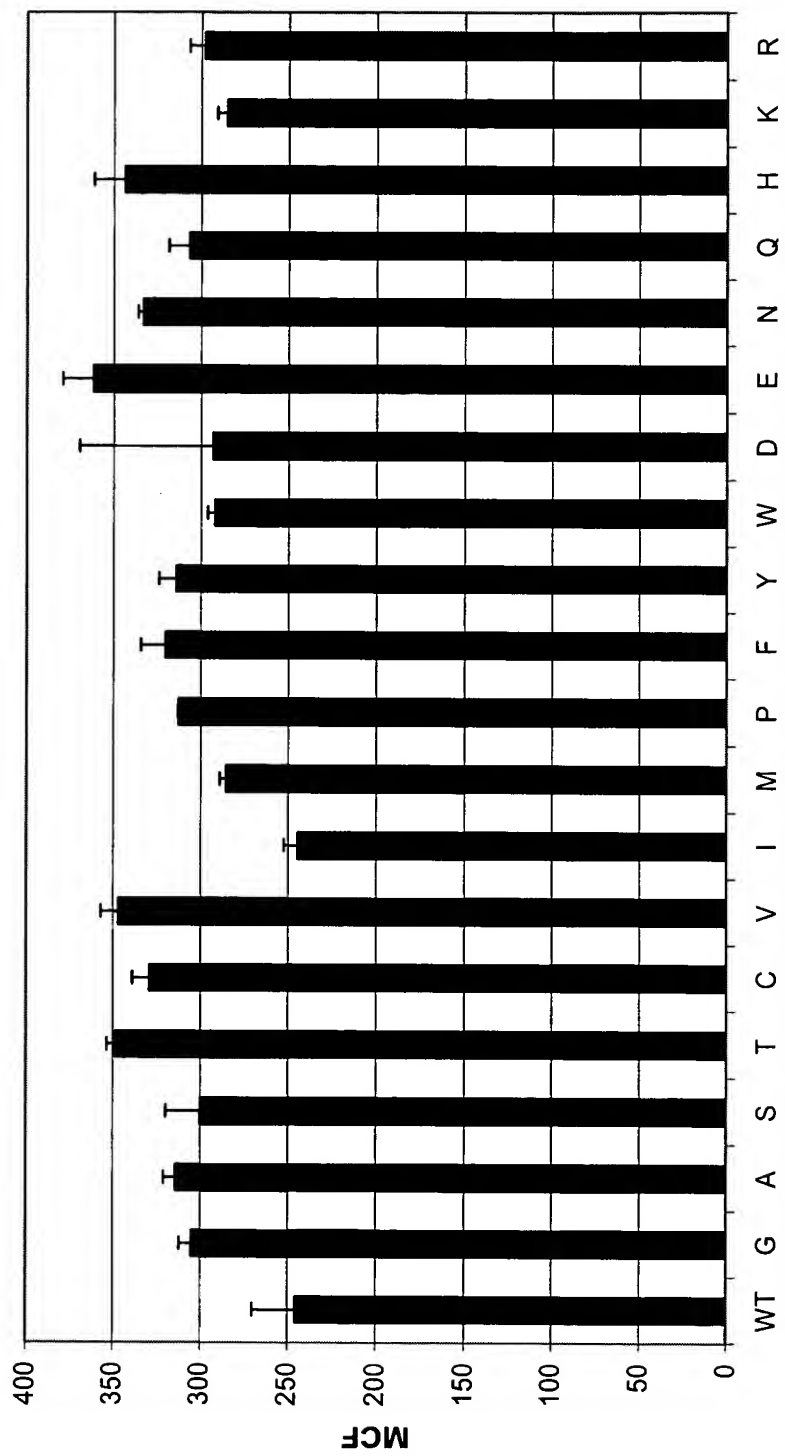


FIG. 11B

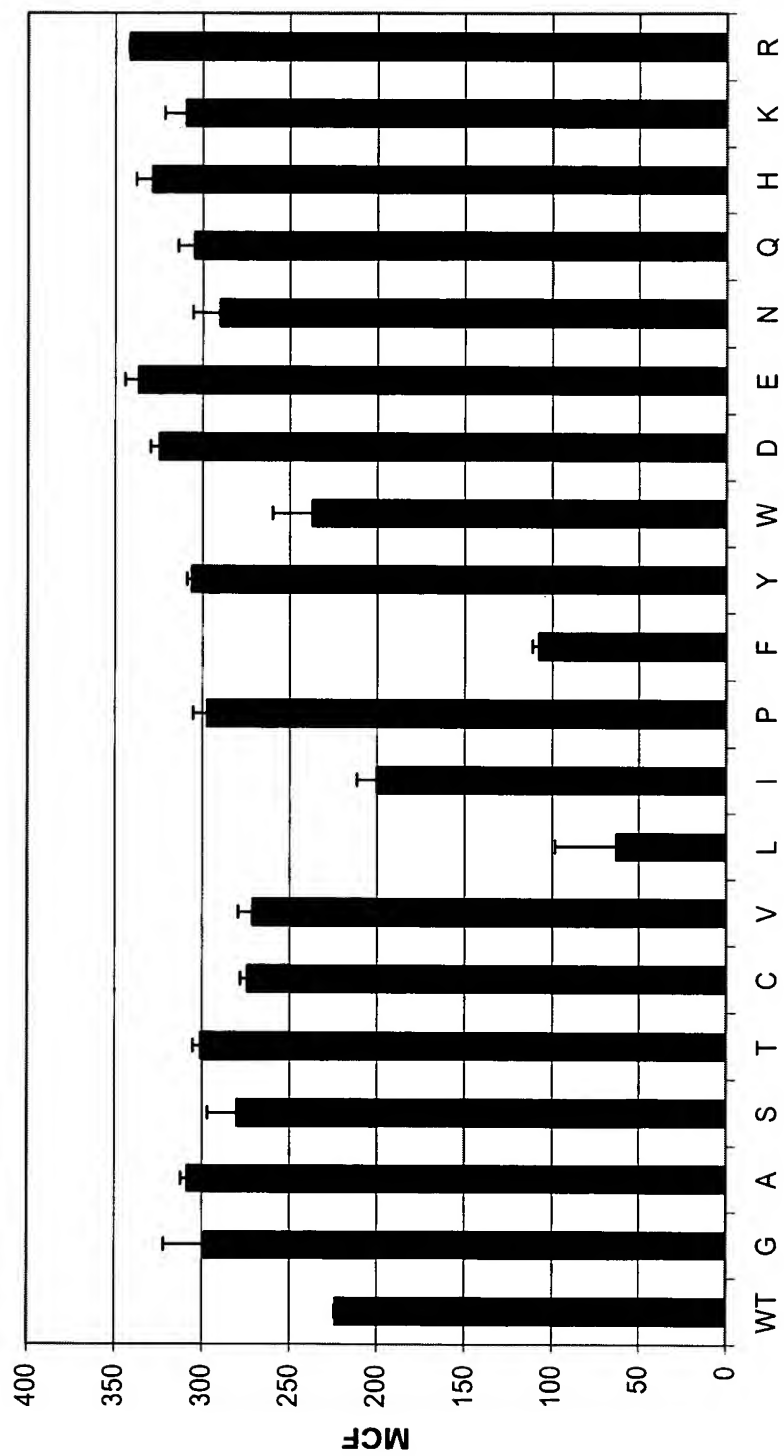


FIG.11C

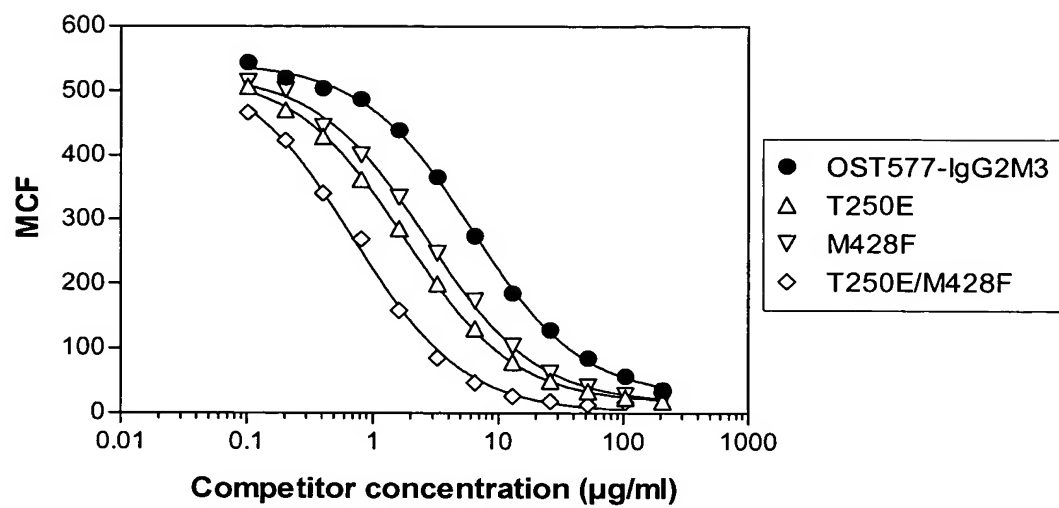


FIG. 12A

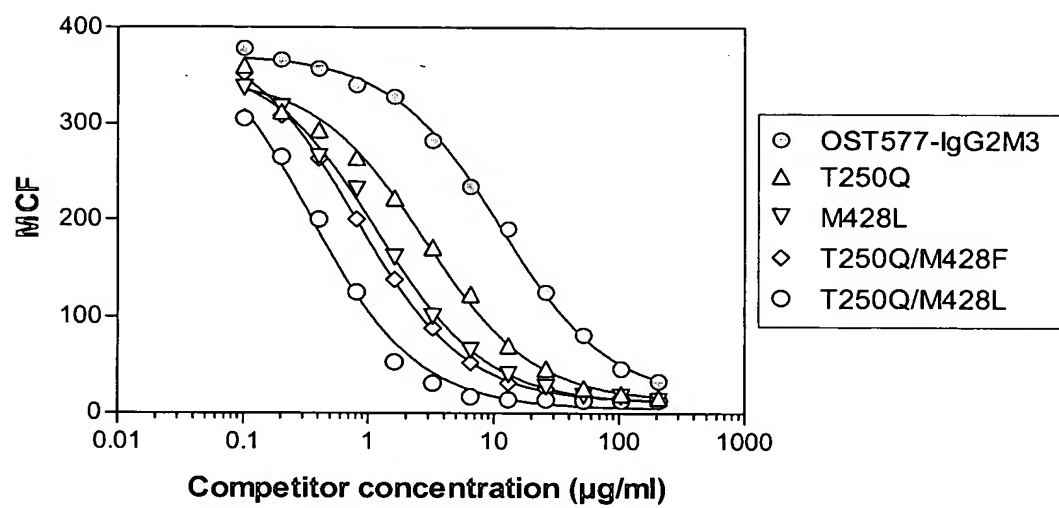


FIG. 12B

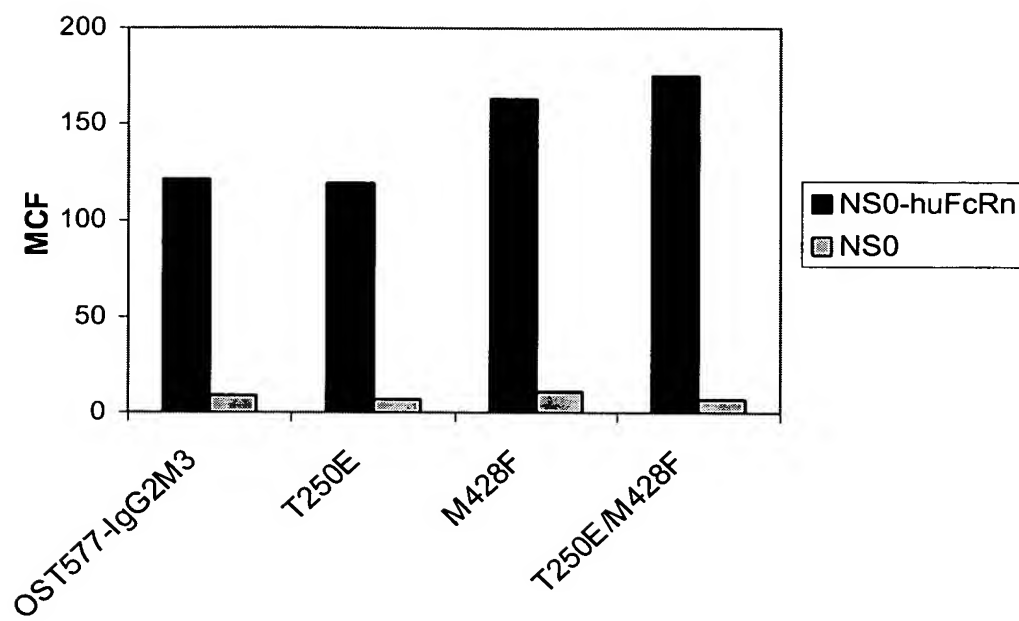


FIG. 13

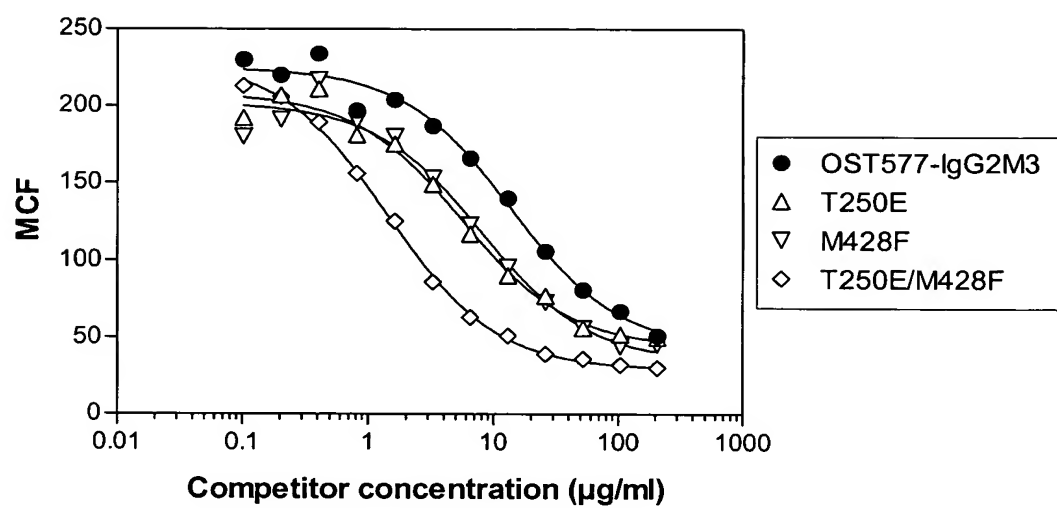


FIG. 14

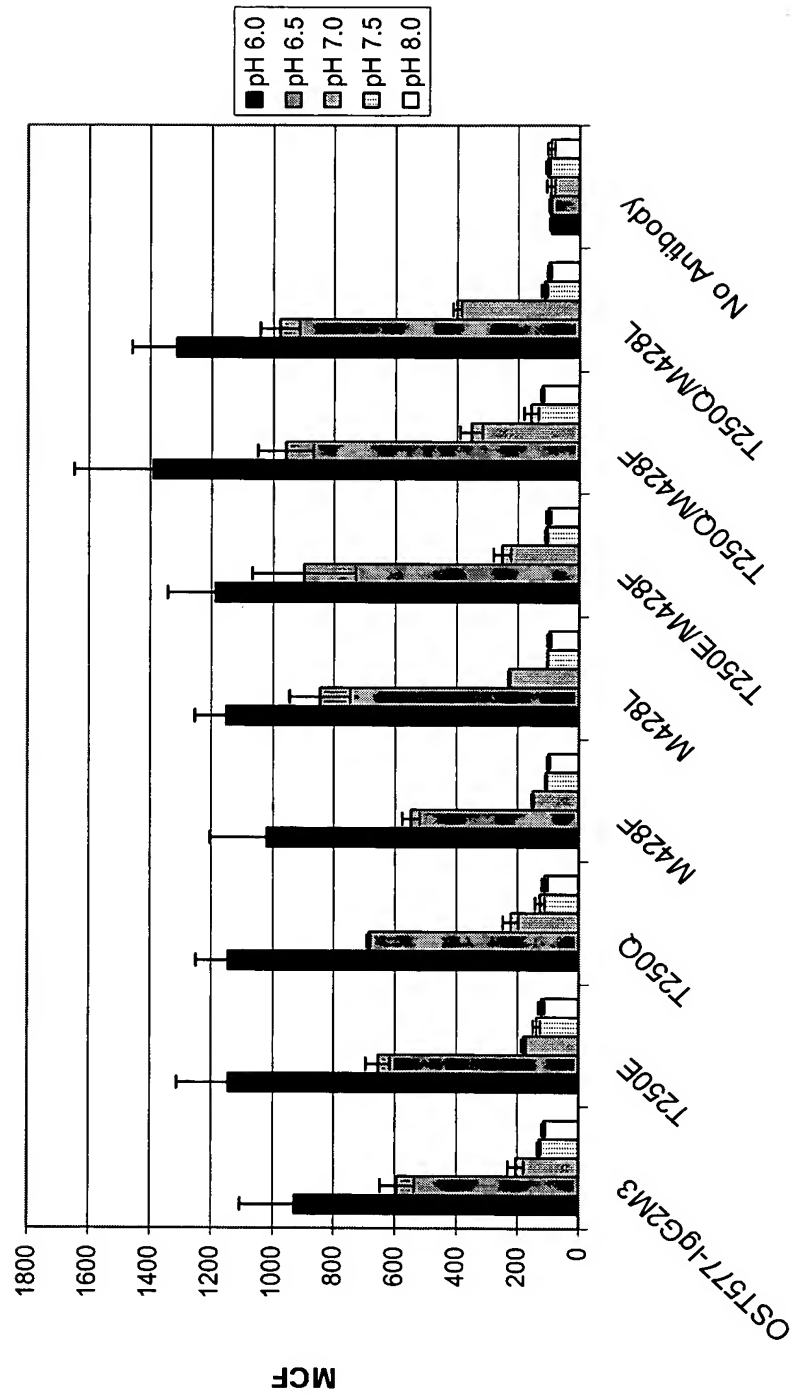


FIG. 15A

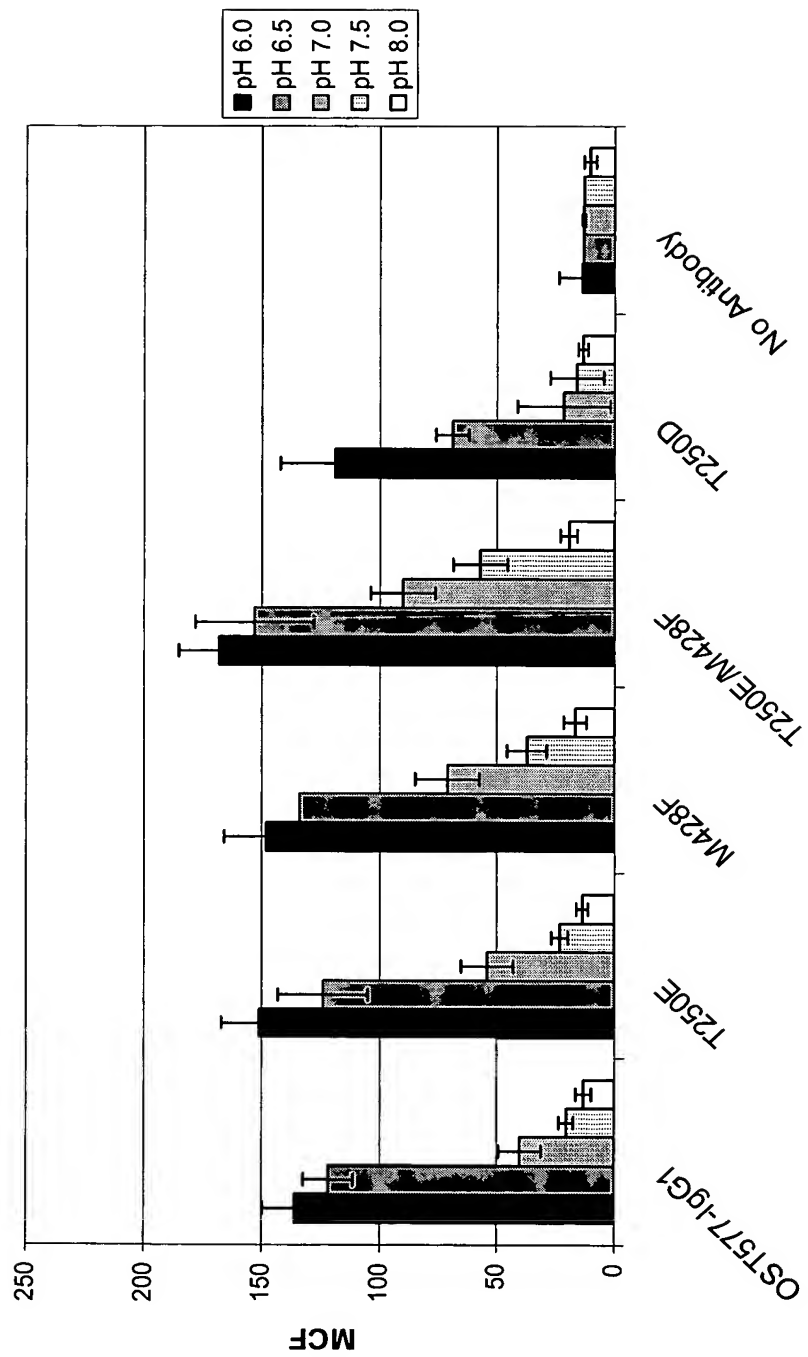


FIG. 15B

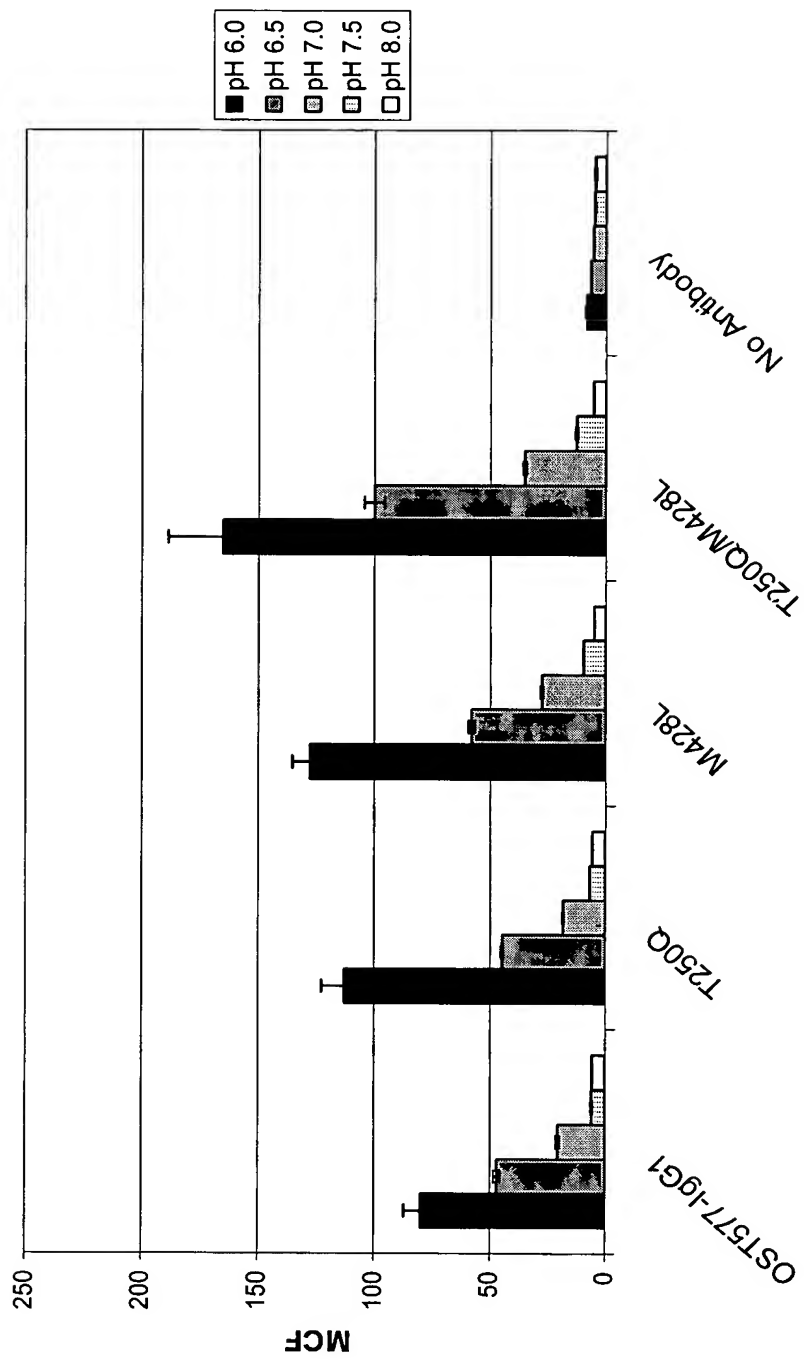


FIG. 15C

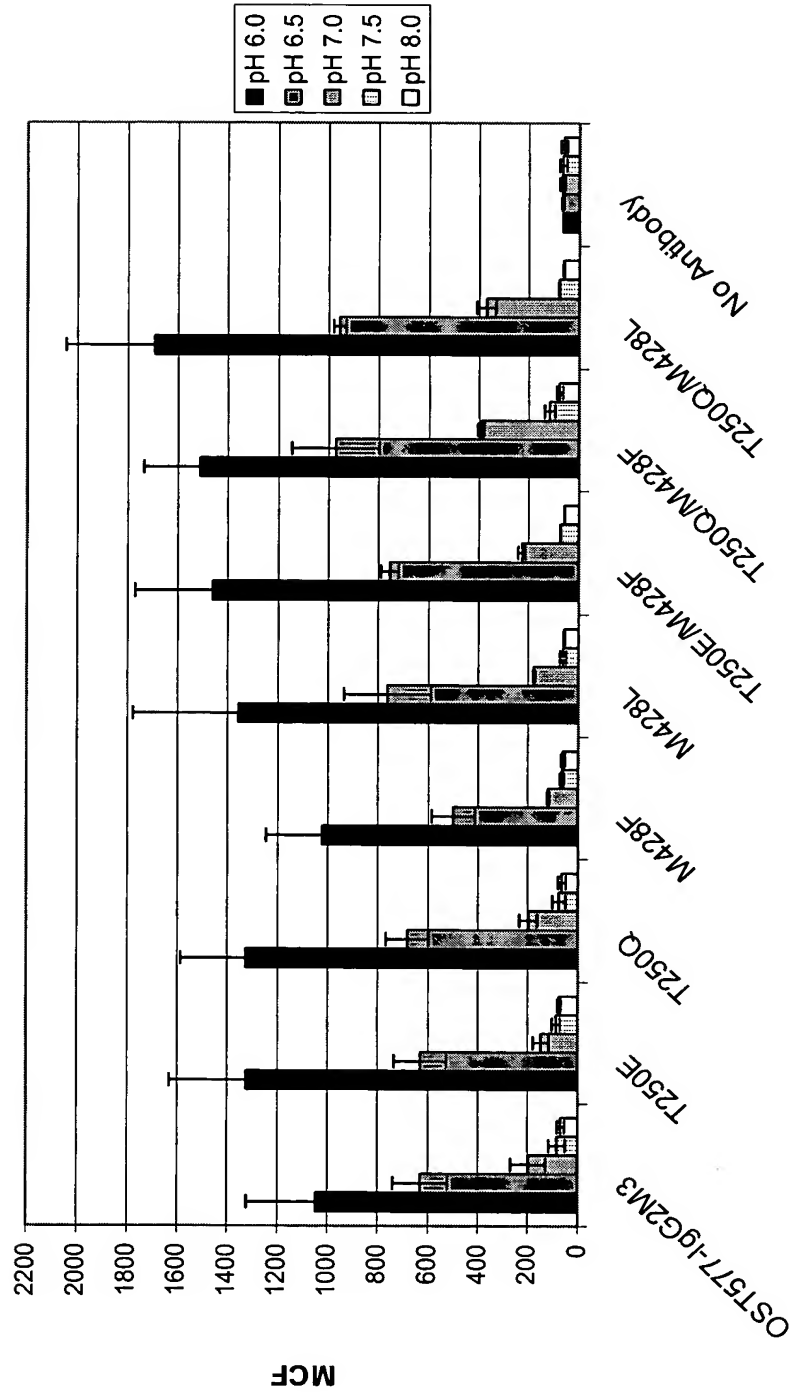


FIG. 15D

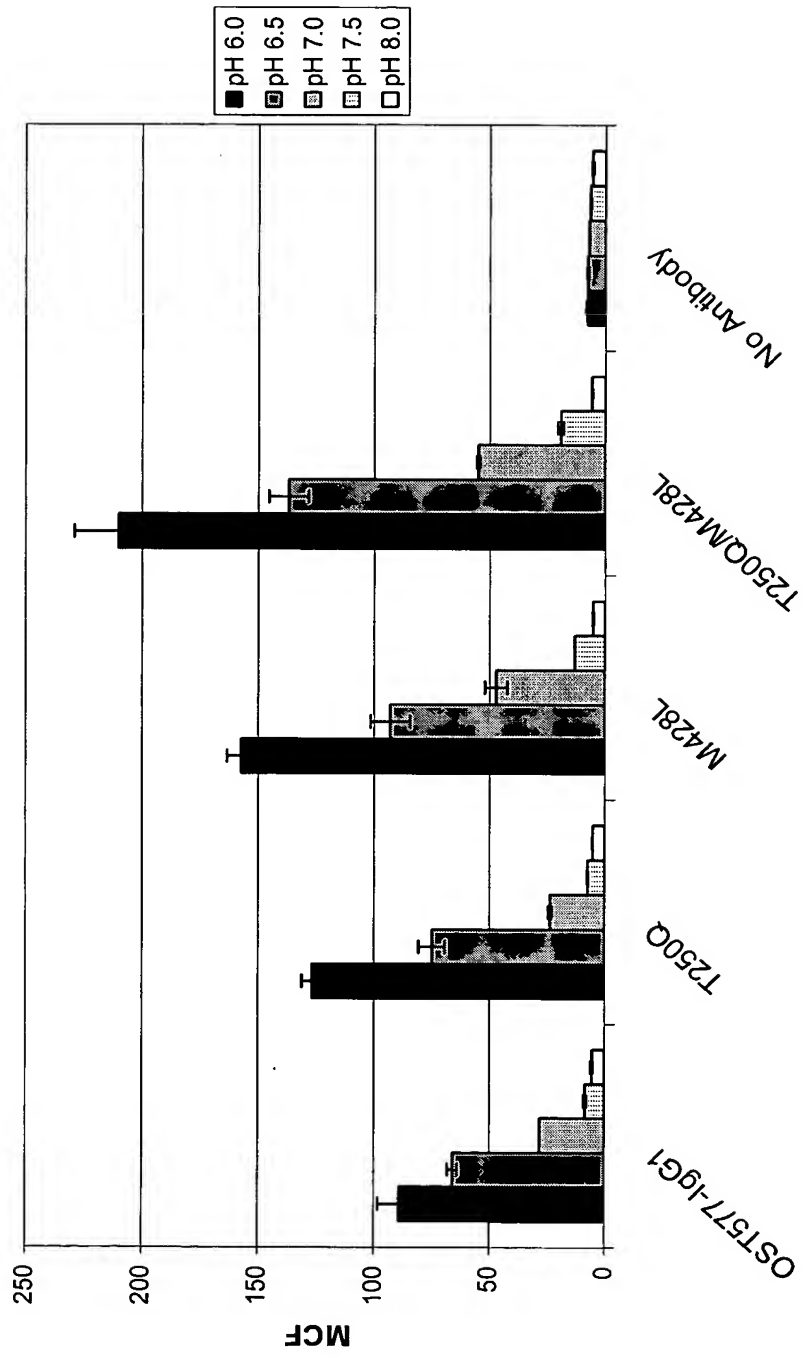


FIG. 15E

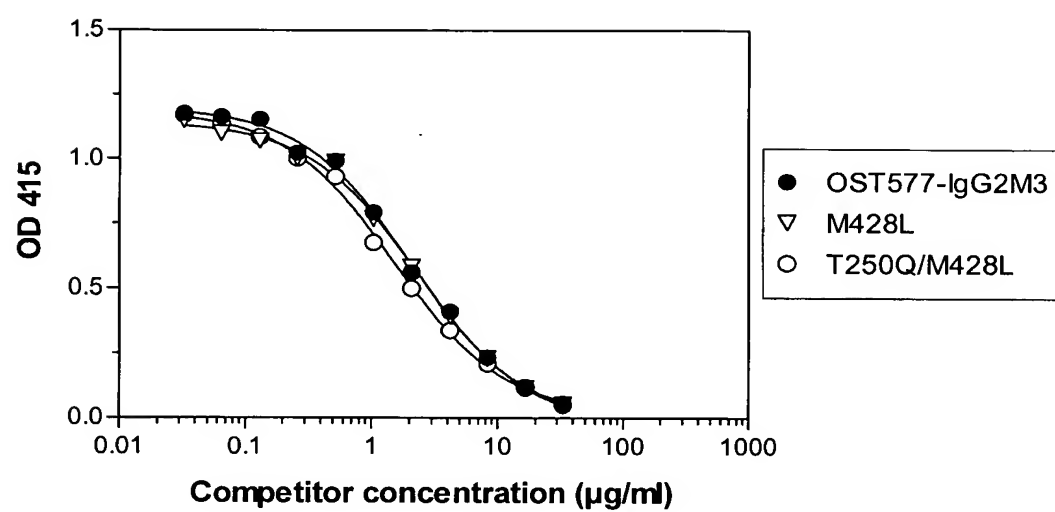


FIG. 16A

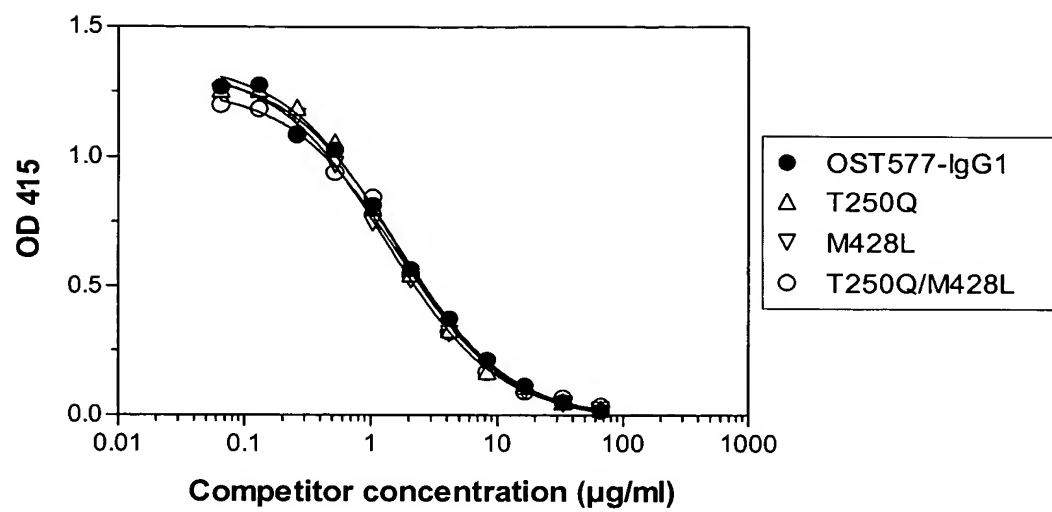


FIG. 16B

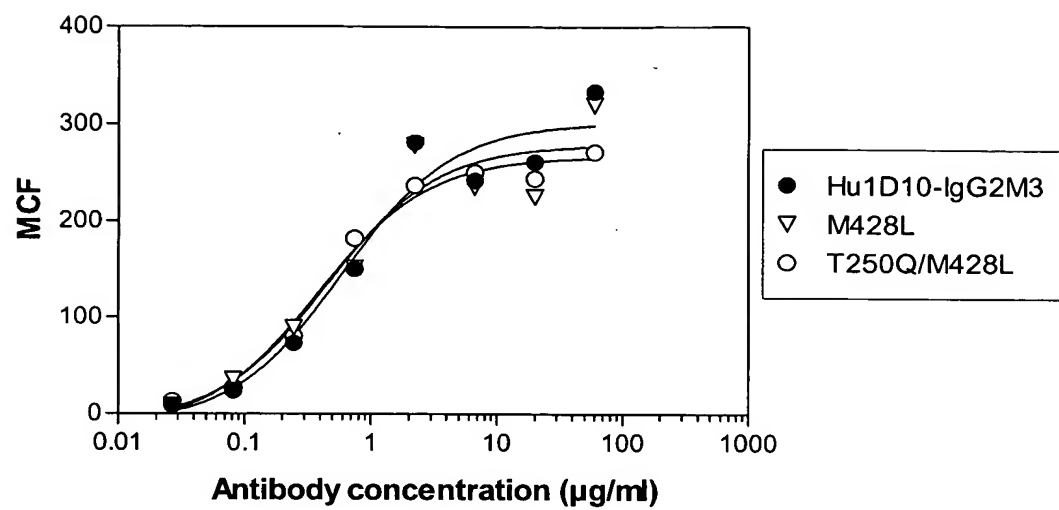


FIG. 17A

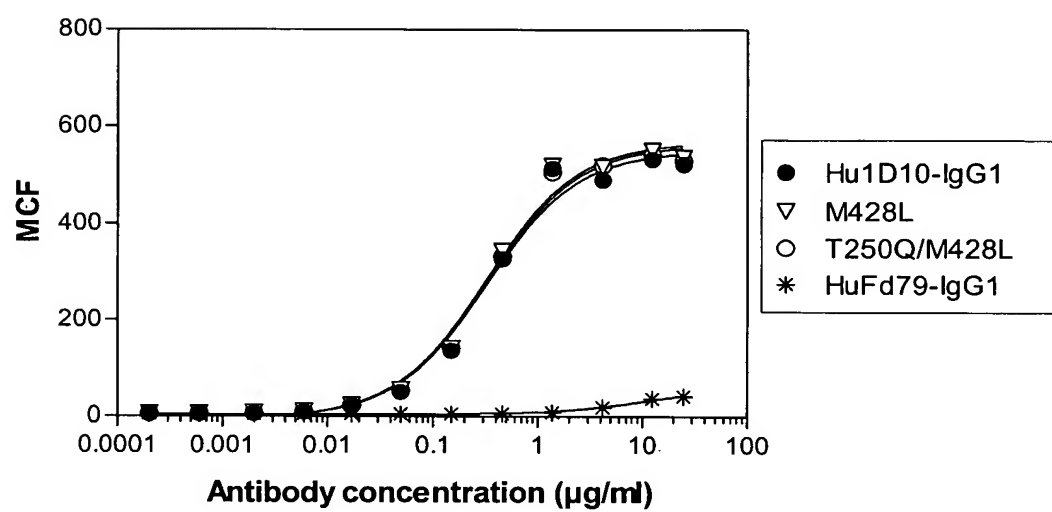


FIG. 17B

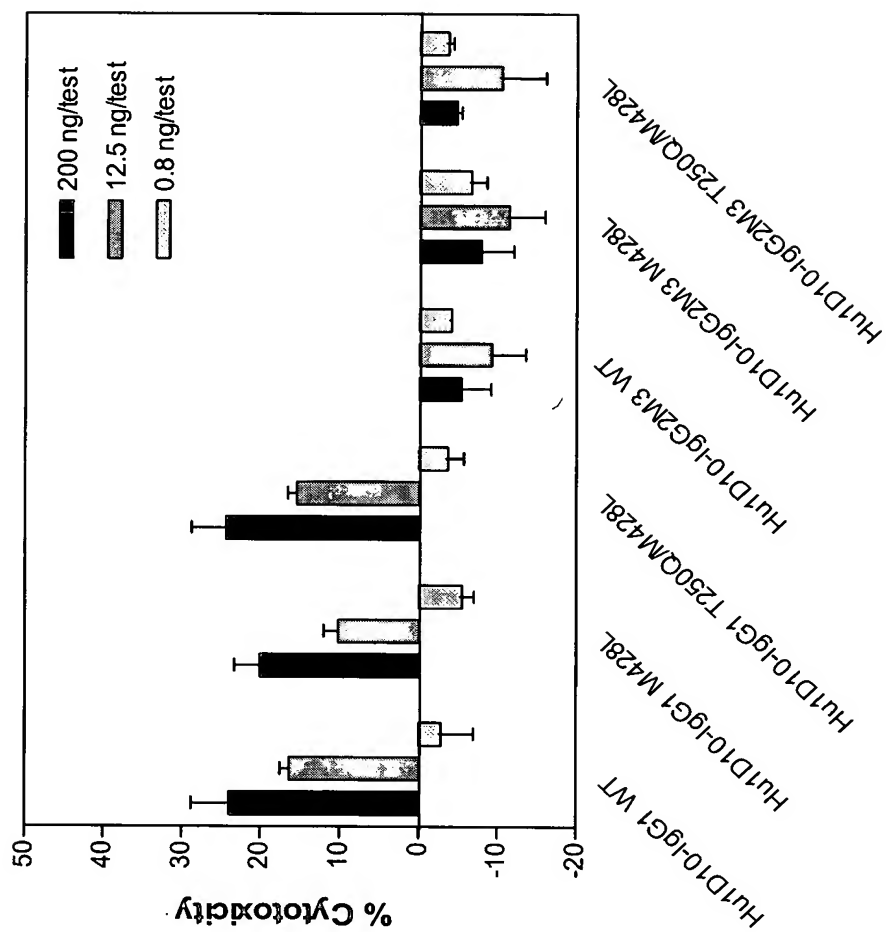


FIG. 18A

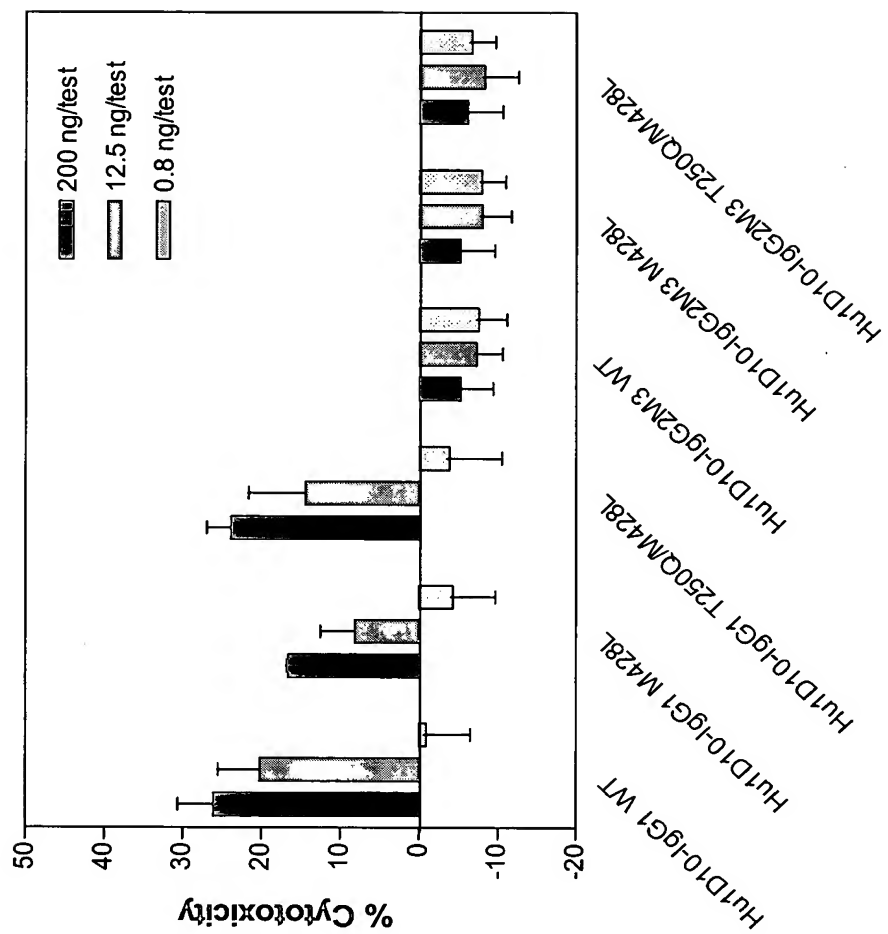


FIG. 18B

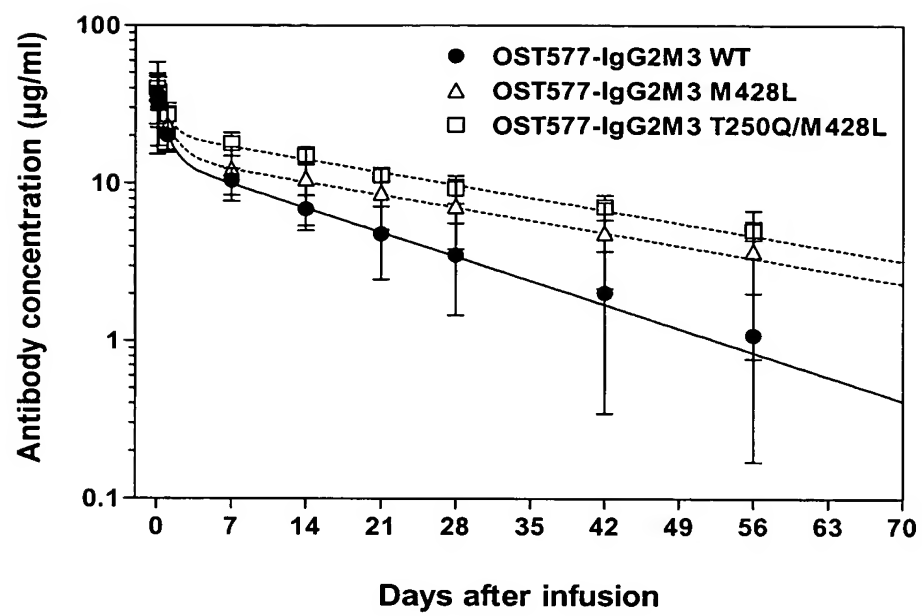


FIG. 19

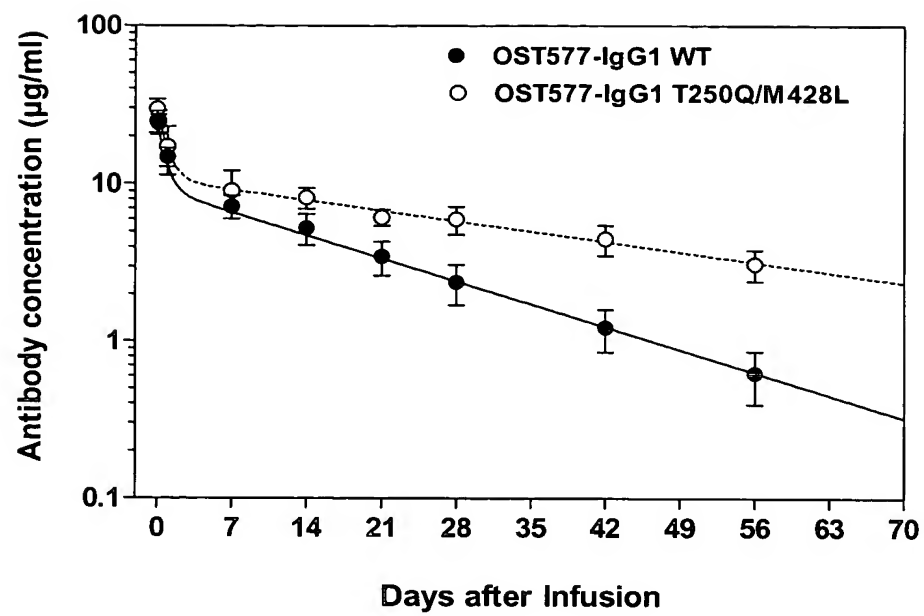


FIG. 20

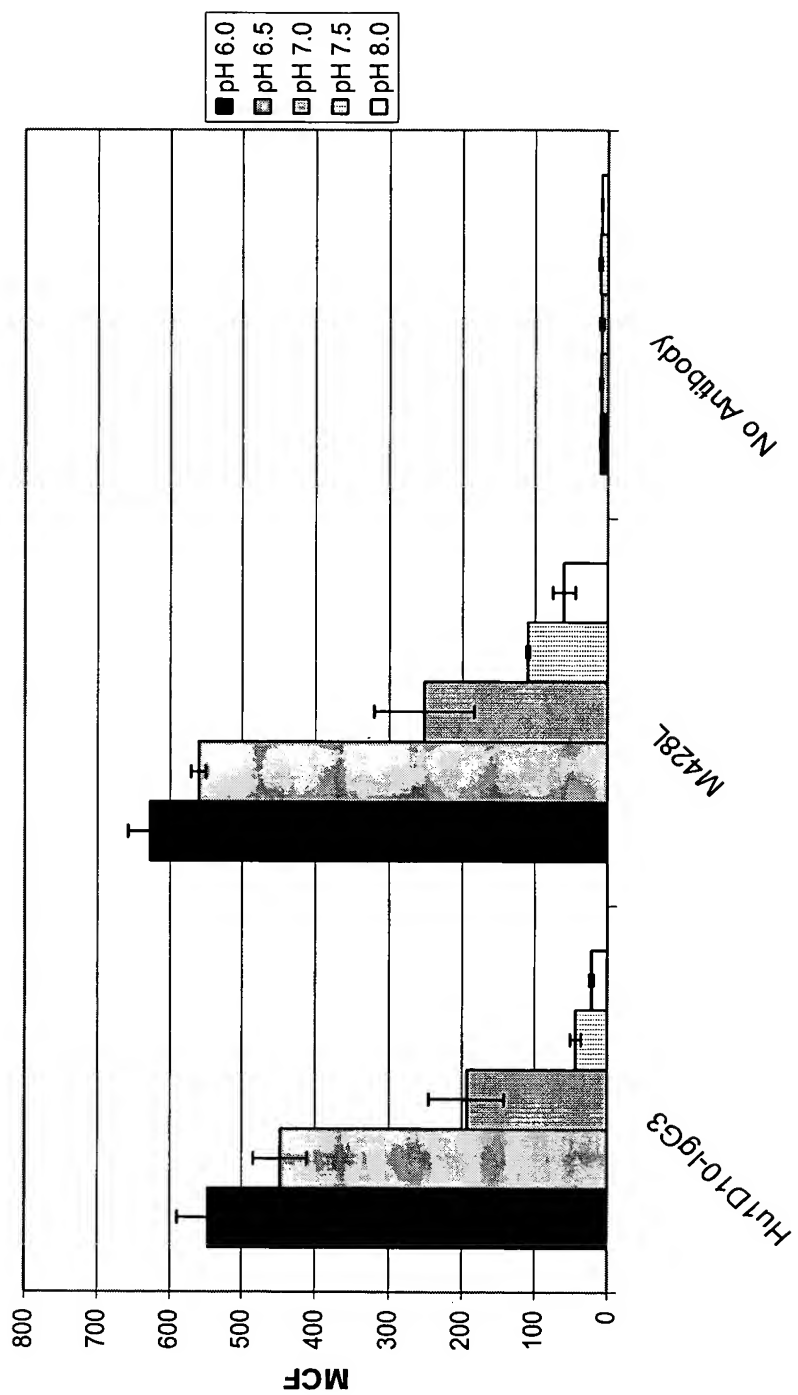


FIG. 21A

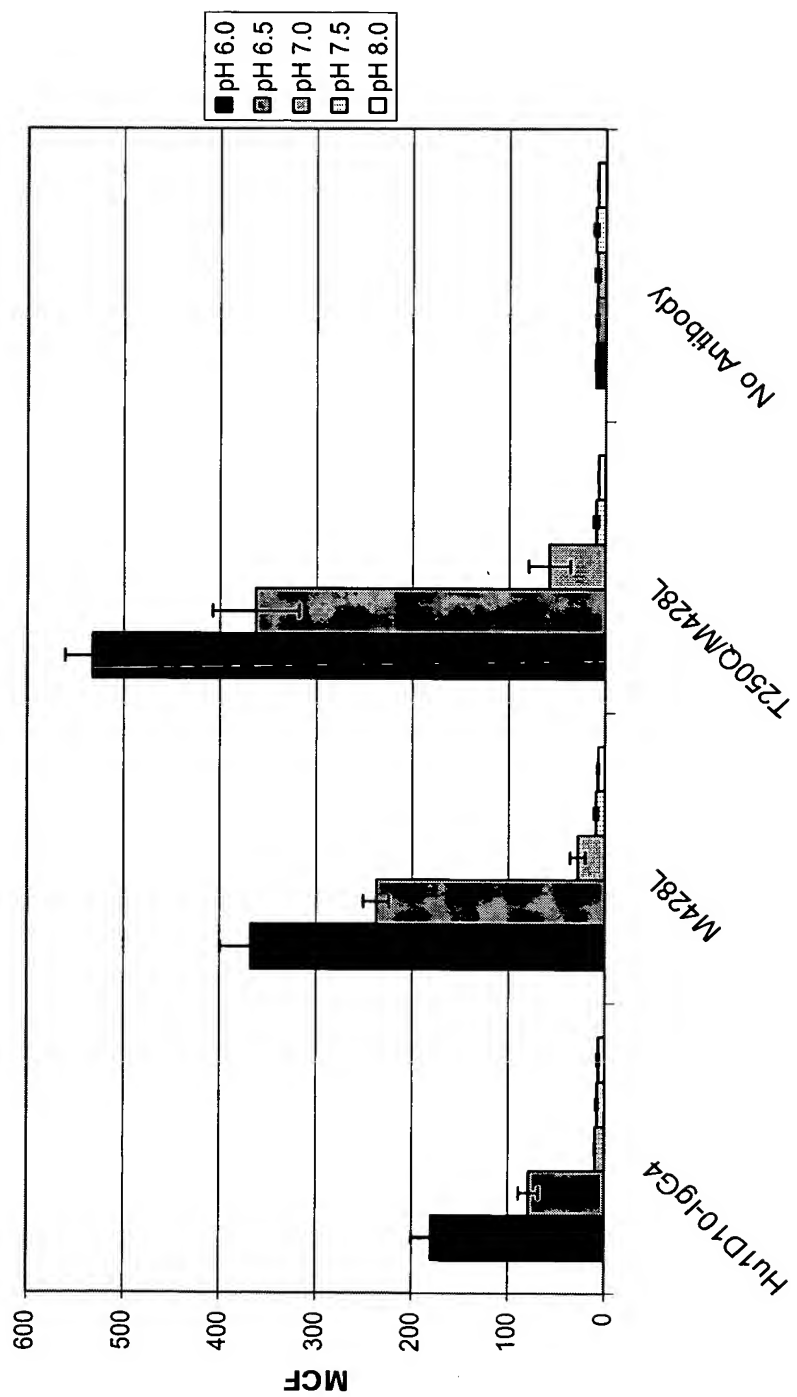


FIG. 21B

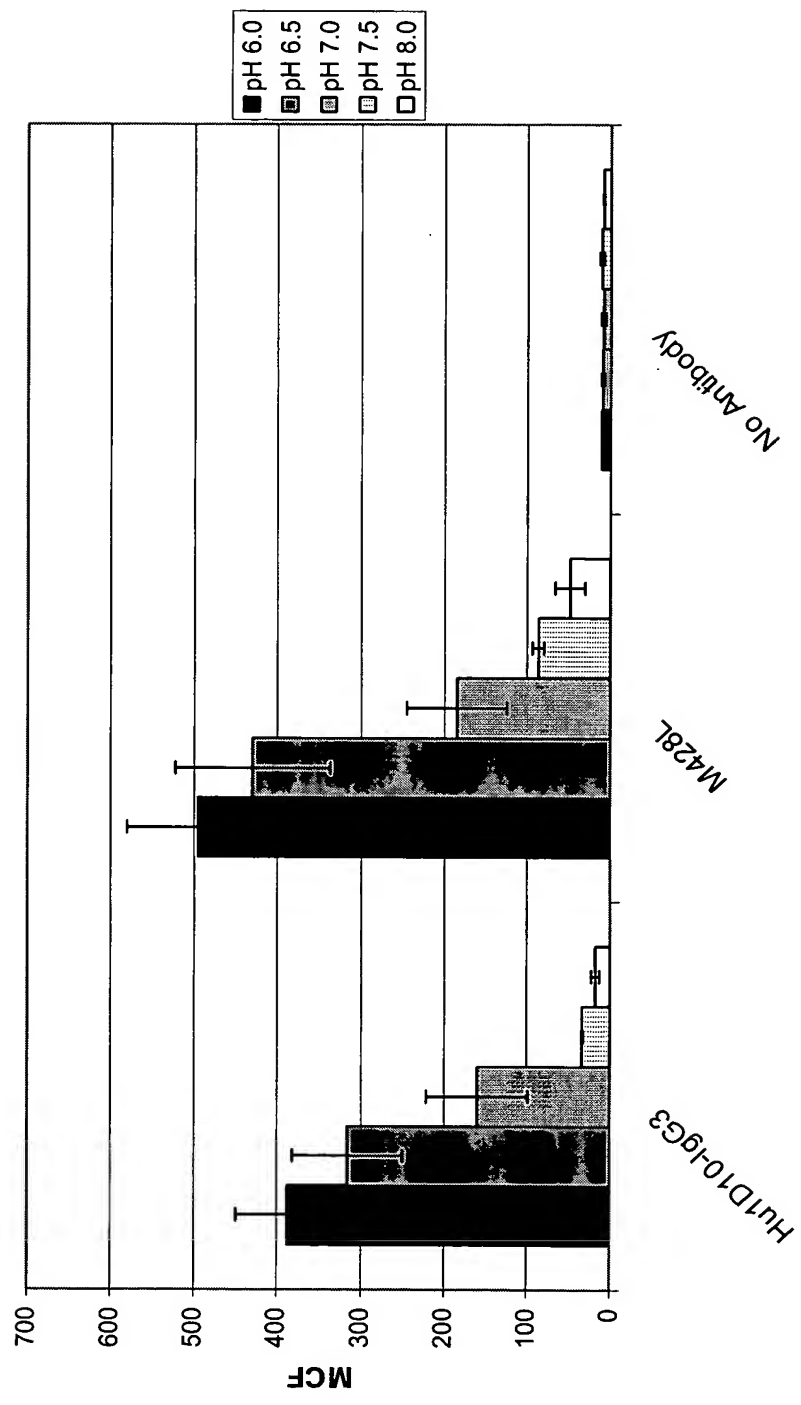


FIG. 21C



FIG. 21D

Daclizumab

Mature kappa light chain (SEQ ID NO:118)

DIQMTQSPSTLSASVGDRTITCSASSSISYMHYQKPGKAPKLLIYTTSNLSAGVPARFSGSGSGTEFTLTISLQP
DDFATYYCHQRSTYPLTFGQGTKVEVKRTVAAPSVFIFPPSDEQLKSGTASVCLLNNFYPREAKVQWKVDNALQSGNS
QESVTEQDSKSTYLSSTLTLSKADYEKHKVYACEVTHQGLSPVTKSFNRGEC

Mature gamma-1 heavy chain with T250D (SEQ ID NO:119)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMESSLRSEDVAVYYCARGGGVFDYWGQGTTLVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGK
EYCKKVSNAKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
VLDSGDSFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNHYTQKSLSLSPGK

Mature gamma-1 heavy chain with T250Q (SEQ ID NO:120)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMESSLRSEDVAVYYCARGGGVFDYWGQGTTLVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGK
EYCKKVSNAKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
VLDSGDSFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNHYTQKSLSLSPGK

Mature gamma-1 heavy chain with M428L (SEQ ID NO:121)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMESSLRSEDVAVYYCARGGGVFDYWGQGTTLVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGK
EYCKKVSNAKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
VLDSGDSFFLYSKLTVDKSRWQQGNVFCSVLHEALHNHYTQKSLSLSPGK

Mature gamma-1 heavy chain with T250Q/M428L (SEQ ID NO:122)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMESSLRSEDVAVYYCARGGGVFDYWGQGTTLVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGK
EYCKKVSNAKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
VLDSGDSFFLYSKLTVDKSRWQQGNVFCSVLHEALHNHYTQKSLSLSPGK

Mature gamma-1 heavy chain with T250Q/M428F (SEQ ID NO:123)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMESSLRSEDVAVYYCARGGGVFDYWGQGTTLVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGK
EYCKKVSNAKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
VLDSGDSFFLYSKLTVDKSRWQQGNVFCSVFHEALHNHYTQKSLSLSPGK

Fig. 22

Daclizumab (continued)

Mature gamma-2M3 heavy chain with T250D (SEQ ID NO:124)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMEISSLRSEDTAVYYCARGGGVFDYWGQGTLLTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCAPPAAAPSVFL
FPPKPKD~~Q~~LMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVSVLTVVHQDWLNGKEYKC
KVSNGKLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPMLDS
DGSFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNHYTQKSLSLSPGK

Mature gamma-2M3 heavy chain with T250Q (SEQ ID NO:125)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMEISSLRSEDTAVYYCARGGGVFDYWGQGTLLTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCAPPAAAPSVFL
FPPKPKD~~Q~~LMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVSVLTVVHQDWLNGKEYKC
KVSNGKLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPMLDS
DGSFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNHYTQKSLSLSPGK

Mature gamma-2M3 heavy chain with M428L (SEQ ID NO:126)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMEISSLRSEDTAVYYCARGGGVFDYWGQGTLLTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCAPPAAAPSVFL
FPPKPKD~~Q~~LMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVSVLTVVHQDWLNGKEYKC
KVSNGKLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPMLDS
DGSFFLYSKLTVDKSRWQQGNVFCSCV~~L~~HEALHNHYTQKSLSLSPGK

Mature gamma-2M3 heavy chain with T250Q/M428L (SEQ ID NO:127)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMEISSLRSEDTAVYYCARGGGVFDYWGQGTLLTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCAPPAAAPSVFL
FPPKPKD~~Q~~LMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVSVLTVVHQDWLNGKEYKC
KVSNGKLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPMLDS
DGSFFLYSKLTVDKSRWQQGNVFCSCV~~L~~HEALHNHYTQKSLSLSPGK

Mature gamma-2M3 heavy chain with T250Q/M428F (SEQ ID NO:128)

QVQLVQSGAEVKKPGSSVKVSKASGYTFTSYRMHWVRQAPGQGLEWIGYINPSTGYTEYNQKFKDKATITADESTNTA
YMEISSLRSEDTAVYYCARGGGVFDYWGQGTLLTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWN
SGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCAPPAAAPSVFL
FPPKPKD~~Q~~LMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVSVLTVVHQDWLNGKEYKC
KVSNGKLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPMLDS
DGSFFLYSKLTVDKSRWQQGNVFCSCV~~F~~HEALHNHYTQKSLSLSPGK

Fig. 22 (cont.)

Fontolizumab (HuZAF[®])

Mature kappa light chain (SEQ ID NO:129)

DIQMTQSPSTLSASVGDRTITCKASENVDITYVSWYQQKPGKAPKLLIYGASNRYTGVPSRFSGSGSGTDFTLTISLQ
PDDFATYYCGQSYNYPFTFGQGTKVEVKRTVAAPSVFIFPPSDEQLKSGTASVCLNNFYFPREKQVQKVDNALQSGN
SQESVTEQDSKDYSLSSSTLTLSKADYEKHKVYACEVTHQGLSPVTKSFNRGEC

Mature gamma-1 heavy chain with T250D (SEQ ID NO:130)

QVQLVQSGAELKKPGSSVKVSKASGYIFTSSWINVVKQAPGQGLEWIGRIDPSDGEVHYNQDFKDKATLTVDKSTNTA
YMESSLRSEDTAVYYCARGFLPWFADWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSW
NSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG
PSVFLFPPKPKDQLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTT
PVLDSDGSFFLYSLKLTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLSLSPGK

Mature gamma-1 heavy chain with T250Q (SEQ ID NO:131)

QVQLVQSGAELKKPGSSVKVSKASGYIFTSSWINVVKQAPGQGLEWIGRIDPSDGEVHYNQDFKDKATLTVDKSTNTA
YMESSLRSEDTAVYYCARGFLPWFADWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSW
NSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG
PSVFLFPPKPKDQLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTT
PVLDSDGSFFLYSLKLTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLSLSPGK

Mature gamma-1 heavy chain with M428L (SEQ ID NO:132)

QVQLVQSGAELKKPGSSVKVSKASGYIFTSSWINVVKQAPGQGLEWIGRIDPSDGEVHYNQDFKDKATLTVDKSTNTA
YMESSLRSEDTAVYYCARGFLPWFADWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSW
NSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG
PSVFLFPPKPKDQLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTT
PVLDSDGSFFLYSLKLTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLSLSPGK

Mature gamma-1 heavy chain with T250Q/M428L (SEQ ID NO:133)

QVQLVQSGAELKKPGSSVKVSKASGYIFTSSWINVVKQAPGQGLEWIGRIDPSDGEVHYNQDFKDKATLTVDKSTNTA
YMESSLRSEDTAVYYCARGFLPWFADWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSW
NSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG
PSVFLFPPKPKDQLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTT
PVLDSDGSFFLYSLKLTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLSLSPGK

Mature gamma-1 heavy chain with T250Q/M428F (SEQ ID NO:134)

QVQLVQSGAELKKPGSSVKVSKASGYIFTSSWINVVKQAPGQGLEWIGRIDPSDGEVHYNQDFKDKATLTVDKSTNTA
YMESSLRSEDTAVYYCARGFLPWFADWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSW
NSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG
PSVFLFPPKPKDQLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTT
PVLDSDGSFFLYSLKLTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLSLSPGK

Fig. 23

Visilizumab (Nuvion®)

Mature kappa light chain (SEQ ID NO:135)

DIQMTQSPSSLSASVGDRTTITCSASSSVSYMNWYQQKPGKAPKRLIYDTSKLSASGVPSRFSGSGSGTDFTLTISLQPE
EDFATYYCQQWSSNPPTFGGGTKVEIKRTVAAPSVEIFPPSDEQLKSGTASVVCLLNNFYPRKAVQWKVDNALQSGNS
QESVTEQDSKDYSLSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Mature gamma-2M3 heavy chain with T250D (SEQ ID NO:136)

QVQLVQSGAEVKKPGASVKVSCKASGYTFISYTMHWVRQAPGQGLEWMGYINPRSGYTHYNQKLKDKATLTADKSASTA
YMEISSLRSEDTAVYYCARSAYDYDGFAYWGQGLTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVT
VSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVKCCVECPPCPAPPAAP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWLNGK
EYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
MLDSDGSFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNHYTQKSLSLSPSK

Mature gamma-2M3 heavy chain with T250Q (SEQ ID NO:137)

QVQLVQSGAEVKKPGASVKVSCKASGYTFISYTMHWVRQAPGQGLEWMGYINPRSGYTHYNQKLKDKATLTADKSASTA
YMEISSLRSEDTAVYYCARSAYDYDGFAYWGQGLTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVT
VSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVKCCVECPPCPAPPAAP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWLNGK
EYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
MLDSDGSFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNHYTQKSLSLSPSK

Mature gamma-2M3 heavy chain with M428L (SEQ ID NO:138)

QVQLVQSGAEVKKPGASVKVSCKASGYTFISYTMHWVRQAPGQGLEWMGYINPRSGYTHYNQKLKDKATLTADKSASTA
YMEISSLRSEDTAVYYCARSAYDYDGFAYWGQGLTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVT
VSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVKCCVECPPCPAPPAAP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWLNGK
EYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
MLDSDGSFFLYSKLTVDKSRWQQGNVFCSVLHEALHNHYTQKSLSLSPSK

Mature gamma-2M3 heavy chain with T250Q/M428L (SEQ ID NO:139)

QVQLVQSGAEVKKPGASVKVSCKASGYTFISYTMHWVRQAPGQGLEWMGYINPRSGYTHYNQKLKDKATLTADKSASTA
YMEISSLRSEDTAVYYCARSAYDYDGFAYWGQGLTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVT
VSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVKCCVECPPCPAPPAAP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWLNGK
EYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
MLDSDGSFFLYSKLTVDKSRWQQGNVFCSVLHEALHNHYTQKSLSLSPSK

Mature gamma-2M3 heavy chain with T250Q/M428F (SEQ ID NO:140)

QVQLVQSGAEVKKPGASVKVSCKASGYTFISYTMHWVRQAPGQGLEWMGYINPRSGYTHYNQKLKDKATLTADKSASTA
YMEISSLRSEDTAVYYCARSAYDYDGFAYWGQGLTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVT
VSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSNFGTQTYTCNVDHKPSNTKVDKTVKCCVECPPCPAPPAAP
SVFLFPPKPKDQLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWLNGK
EYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTP
MLDSDGSFFLYSKLTVDKSRWQQGNVFCSVLHEALHNHYTQKSLSLSPSK

Fig. 24

M200

Mature kappa light chain (SEQ ID NO:141)

QIVLTQSPAIMASASLGERVTMTCTASSSVSSNYLHWYQQKPGSAPNLWIYSTSNLASGVPARFSGSGSGTSYSLTISSM
EAEDAATYYCHQYLRSPPTFGGGTKLEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSG
NSQESVTEQDSKSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Mature gamma-4 heavy chain with T250D (SEQ ID NO:142)

QVQLKESGPGLVAPSQSLITCTISGFSLTDYGVHWVRQPPGKGLEWLVVIWSDGSSTYNSALKSRMTIRKDNSKSQVF
LIMNSLQTDSDAMYYCARHGTYYGMTTGGDALDYWGQGTSTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFP
EPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGKTKYTCNVDHKPSNTKVDKRVESKYGPPCPSCPAPE
FLGGPSVFLFPPKPKDDLMI SRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLHQD
WLNKEYKCKVSNKGLPSSIEKTI S KAKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNY
KTTTPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSVMEALHNHYTQKSLSLGLK

Mature gamma-4 heavy chain with T250Q (SEQ ID NO:143)

QVQLKESGPGLVAPSQSLITCTISGFSLTDYGVHWVRQPPGKGLEWLVVIWSDGSSTYNSALKSRMTIRKDNSKSQVF
LIMNSLQTDSDAMYYCARHGTYYGMTTGGDALDYWGQGTSTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFP
EPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGKTKYTCNVDHKPSNTKVDKRVESKYGPPCPSCPAPE
FLGGPSVFLFPPKPKDQLMI SRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLHQD
WLNKEYKCKVSNKGLPSSIEKTI S KAKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNY
KTTTPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSVMEALHNHYTQKSLSLGLK

Mature gamma-4 heavy chain with M428L (SEQ ID NO:144)

QVQLKESGPGLVAPSQSLITCTISGFSLTDYGVHWVRQPPGKGLEWLVVIWSDGSSTYNSALKSRMTIRKDNSKSQVF
LIMNSLQTDSDAMYYCARHGTYYGMTTGGDALDYWGQGTSTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFP
EPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGKTKYTCNVDHKPSNTKVDKRVESKYGPPCPSCPAPE
FLGGPSVFLFPPKPKDTLMI SRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLHQD
WLNKEYKCKVSNKGLPSSIEKTI S KAKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNY
KTTTPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSVLHEALHNHYTQKSLSLGLK

Mature gamma-4 heavy chain with T250Q/M428L (SEQ ID NO:145)

QVQLKESGPGLVAPSQSLITCTISGFSLTDYGVHWVRQPPGKGLEWLVVIWSDGSSTYNSALKSRMTIRKDNSKSQVF
LIMNSLQTDSDAMYYCARHGTYYGMTTGGDALDYWGQGTSTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFP
EPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGKTKYTCNVDHKPSNTKVDKRVESKYGPPCPSCPAPE
FLGGPSVFLFPPKPKDQLMI SRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLHQD
WLNKEYKCKVSNKGLPSSIEKTI S KAKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNY
KTTTPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSVLHEALHNHYTQKSLSLGLK

Mature gamma-4 heavy chain with T250Q/M428F (SEQ ID NO:146)

QVQLKESGPGLVAPSQSLITCTISGFSLTDYGVHWVRQPPGKGLEWLVVIWSDGSSTYNSALKSRMTIRKDNSKSQVF
LIMNSLQTDSDAMYYCARHGTYYGMTTGGDALDYWGQGTSTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFP
EPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGKTKYTCNVDHKPSNTKVDKRVESKYGPPCPSCPAPE
FLGGPSVFLFPPKPKDQLMI SRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLHQD
WLNKEYKCKVSNKGLPSSIEKTI S KAKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNY
KTTTPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSVFHEALHNHYTQKSLSLGLK